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THE PHARMACOLOGY OF FOURTEEN MEXICAN PLANTS.

A PAPER PRESENTED TO THE SECTION ON THERAPEUTICS OF THE PAN-AMERICAN MEDICAL CONGRESS.

BY FERNANDO ALTAMIRANO, M.D., CITY OF MEXICO.

I WISH to present to the Pan-American Medical Congress the results obtained by several Mexican physicians in the study of some indigenous plants. I have compiled whatever work has been accomplished by the Instituto Médico Nacional (National Medical Institute) regarding the botanical classification, chemical composition, and physiological action of said plants, and in many cases I will refer to their most common therapeutic applications. May this study prove of some interest to the distinguished members of the Congress.

BOCONIA ARBOREA (*Watson—Papaveraceæ*).

Habitat.—This plant is known in Michoacan under the common name of inguande, in Morelos under that of llora-sangre (weeping-blood), and in Córdoba it is called gordolobo. It grows abundantly in Michoacan, near Uruapan and

Tengambato. The part of the plant most generally used is the bark. This yields a yellowish juice which contains the active principles. According to M. Lozano (1893), the bark has the following

Chemical Composition.—Water, 10,000; salts, 9500; fats, 1320; acid resin, 9364; boconine (alkaloid), 5116; gum, 1875; dextrin, 5775; oxalic and tartaric acids, 2430; coloring matters, cellulose, etc., 44,990; losses, 9620. The alkaloid was termed *boconine* by Lazo de la Vega, who also made an analysis of the bark. The substance known as boconine is really a mixture of several alkaloids. Lozano has determined four of these, which he has named as follows: *Boconirubine, boconixanthine, boconichlorine,* and *boconiiodine,* names given on account of the coloration they produce with concentrated sulphuric acid (in the order in which the alkaloids are mentioned),—that is, red, yellow, green, and violet. Again, the salts of the first body are red, those of the second body yellow, and those of the third and fourth alkaloids white. All these salts are crystallizable.

Physiological Action.—Boconine, a mixture of three alkaloids, produces anæsthesia of the peripheral nerves at the point of injection. This is followed by an action on the nerve-centres, causing vascular dilatation and hemorrhages. While the drug exercises cerebral disturbances, it does not produce loss of consciousness. The powder of the drug, administered by the stomach, causes emetic effects, due, probably, to the presence of resinous principles.

Therapeutic Uses.—The powder has been applied, with good effect, to produce local anæsthesia in surgical operations.

Cacalia Cervarifœfolia (*D. C.—Compositæ*).

Habitat.—State of Chihuahua. The plant is commonly called matarique, the word signifying "pain-killer." The root, the part of the plant in common use, has an aromatic odor and a bitter taste, and is covered with yellow resinous points.

Chemical Composition.—Cacâlia contains the following: Resin, essence, glycogen, tannin, glucose, and an alkaloid.

Physiological Action.—In doses of .10 gramme, the alcoholic extract of the plant causes in frogs paralysis of the voluntary muscles, diminished sensibility, and cardiac arrest. On dogs, an intravenous injection of the same extract, of .50 gramme, produces general analgesia, depression of cardiac energy, and respiratory disturbances, all these phenomena disappearing in the course of two hours. In man, 30 grammes of the tincture have caused vomiting, intestinal pain, diarrhœa, cramps, and lypothymic symptoms.

Therapeutic Uses.—Externally, the drug, in the form of frictions, is serviceable in the pains of neuralgia, excoriations, and burns; its antiseptic properties enhance the cicatrization of wounds. It has been employed against putrid dyspepsias, constipation, and meteorism. Its principal use, according to Dr. Ceballos, is as an analgesic to combat muscular, rheumatic, and articular pains.

Administration.—The tincture is given in doses of from 15 to 30 grammes, but its effects on the heart should be carefully watched. Externally, it is applied to wounds in the form of a watery solution of the strength of twenty per cent.

Calea Zacatechichi (*Schl.—Compositæ*).

Habitat.—Córdoba and Orizaba, of the State of Vera Cruz. Its common name—zacatechichi—signifies "bitter herb." It is certainly very bitter, and is used by the laity in certain diseases of the stomach.

Chemical Composition.—According to Armendáriz, calea contains chlorophyl, coloring matter, essential oil, acid resin, a volatile acid, a bitter principle, tannin, and salts.

Therapeutic Uses.—In the hospitals the plant has been employed, with good results, in the treatment of dyspepsias, gastric catarrh, anorexia, atonic diarrhœa, etc. The remedy increases the appetite, facilitates digestion, and combats constipation.

Administration.—A decoction in the proportion of five per cent., the extract in 1-gramme doses every twenty-four hours, and the tincture in quantities of 4 grammes in the same time, are employed.

Calliandra Grandiflora (*Benth.—Leguminosæ*).

Habitat.—This plant, commonly known under the names of pambotano, xoloxochitl, and cabellitos, vegetates in the States of Vera Cruz, Morelos, and Michoacan, and in the Valley of Mexico. The parts of the plant used are the rootlets, which are rhizomes, of a fasciculated, tortuous, fibrous, and woody character, having a peculiar persistent acrid taste.

Chemical Composition.—Pambotano is made up of fatty matters, wax, essence, tannin, resin, red coloring matter, and a glucoside.

Action and Uses.—A decoction or the extract of the plant produces no marked effect on frogs or dogs, whether the substance is administered

by the stomach or subcutaneously, once or for several consecutive days. In man, it has been tried in numerous cases of malarial disease, but so far it has proved of no avail. The remedy has never caused the disappearance of the hæmatozoa of Laveran. The plant cannot, therefore, be considered as a reliable drug to use in the treatment of intermittent fevers, notwithstanding its great reputation as an antiperiodic among the laity. It might be of service in chronic paludal intoxication, to combat the diarrhœa and gastric disturbances, owing to its antiseptic properties. A decoction is the preparation most commonly employed. Sixty grammes of the plant are placed in five hundred grammes of water. This is boiled until it is reduced to two-thirds of the original amount. Long boiling is necessary to dissolve the extractive principles.

CORIARIA ATROPURPUREA (*D. C.—Coriariæ*).

Habitat.—Coriaria is also known as tlalocopetate, and is abundantly found in Ameca-Ameca, of the State of Mexico. It is highly poisonous, and cases of poisoning occur every year among country children who eat the fruit.

Chemical Composition.—According to Francisco Rio de la Loza, coriaria is composed chiefly of water, fats, resin, tannin, gallic acid, yellow coloring matter, coriamartine (active principle), and salts. Coriamartine is a solid white substance, made up of hexagonal crystals. It is but little soluble in cold water; it is readily so in alcohol, ether, and chloroform. Sulphuric acid gives to it at first a yellow color, decomposing afterwards with the production of a white powder-like substance. Hydriodic acid gives with the drug a clear yellow hue. The volatile and fixed alkalies give to solutions of coriamartine a rose coloration, which soon turns yellow.

HECHTIA GLOMERATA (*Zuce*) AND H. HARGENTEA (*Baker—Bromeliaceæ*).

Habitat.—The common name of this plant is guapilla. It is abundantly met with in the States of San Luis de Potosi, Querétaro, in Mixtecapan, and other points. It is especially found in rocky soils. The laity use the plant as food, for emollient applications, and as a remedy for pneumonia. At the base of the leaves, on both sides, is found a yellow substance, giving the appearance of a coat of varnish. By rubbing the leaves together this coat is loosened in adhesive, thin plates, consisting of a balsam or vegetable wax, having, according to Armendáriz, the following

Chemical Composition.—Essential oil, 2600; benzoic acid, 5733; acid resin, 79,267; neutral resin, 2100; gum, 40; mineral salts soluble in water, 1360; mineral salts insoluble in water, and losses, 8800. This natural product, owing to its chemical composition, has been classified as a body analogous to benzoin, but presents different peculiarities. It may be known under the name of *bromelian benzoin.* Its properties are these: It has a greenish-yellow color, an aromatic odor, and somewhat sweetish taste; it is soft, and can easily be compressed between the fingers. It melts at 72° C., and has a specific gravity of 1183 at 18° C. The substance is inflammable, and burns with a smoky reddish flame, producing an odor of benzoin. It is soluble in sulphuric ether, absolute alcohol, and in a mixture of alcohol and chloroform; it is almost insoluble in water, in petroleum ether, in benzine, sulphide of carbon, and alcohol at 50° C. The product exhibits a dark-green color with nitric acid; a green, turning into a violet-blue, with sulphuric acid. The alkalies dissolve it, producing a reddish liquid. By a process of sublimation, in the presence of alkalies and water, benzoic acid has been obtained, but this acid was not obtained by the dry method. The applications of bromelian benzoin depend upon the composition of the drug. It may be used as a substitute for the benzoin balsams, etc. The remedy under consideration may be obtained at a low cost, owing to the abundance of the plant from which it is extracted.

ERYTHRINA CORALLOIDES (*D. C.—Leguminosæ*).

Habitat.—This tree is vulgarly called tzompantle; the seeds are known under the name of "colorines" or "patoles." The plant grows in the Valley of Mexico and other places. It is cultivated in the gardens. The wood is used for the manufacture of corks; the flowers are employed as an article of food; the seeds are poisonous. According to the studies of Francisco Rio de la Loza, erythrina has the following

Chemical Composition.—Water, 7.15; fats, 13.35; resin soluble in ether, .32; resin soluble in alcohol, 18.47; alkaline substances, 1.61; albuminous matter, 15.87; mineral salts, 89.15; losses, .68. According to the investigations of the writer, presented to the Mexican National Academy of Medicine on July 27, 1887, the extract of erythrina has the following substances: Coralloidine (convulsant), coralline (inert or little active), erythroidine (powerful motor paralyzant), erythric acid (inactive), erythro-resin (emetic), an inert principle, fats,

glycogen, coloring matter, mineral salts, resin. Summarizing the physiological action of this extract, it may be said that it paralyzes the terminal plates of the motor nerves, produces convulsions, and acts as an emetic.

Therapeutic Uses.—The extract of erythrina has been recommended in the treatment of tetanus and epilepsy, in chorea and similar disorders. There appears to be no indication for its use as an excitant. The drug is a sure emetic for the lower animals, especially in the case of birds.

GAULTHERIA OVATA (*D. C.—Ericaceæ*).

Habitat.—This plant is popularly known under the name of axocopaque. It grows abundantly near Huauchinango, in Orizaba, and Jalapa. The whole plant is aromatic, and is quite frequently used as a perfume in churches and in private houses. The ancient Mexicans employed it to perfume their clothing and to preserve this from the action of moths. It was also used internally in the treatment of various diseases.

Composition and Uses.—The plant contains twenty per cent. of essential oil, which may be considered as the active principle, and is analogous to the essence of winter-green or *Gaultheria procumbens* of the United States of North America. Its antiseptic, diuretic, and antirheumatic properties have been made use of in practical medicine. It is especially employed in the treatment of rheumatic affections of children, as possessing advantages over the salicylate of sodium. As an antiseptic, the active principle of *Gaultheria ovata* is as efficacious as either salicylic or phenic acid, without being so toxic. It is to be preferred in the antisepsis of mucous membranes and external wounds. An infusion of the drug is the form of preparation most commonly used. This is prepared in the strength of ten per cent. It is easy to take in this manner, and is for a long time well borne by the stomach.

MONTANOA TOMENTOSA (*Llav. and Lex—Compositæ*).

Habitat.—Zihuapatli, the Aztec name of this plant, signifies woman's medicine. It is quite common all over the republic, especially in the Valley of Mexico.

Chemical Composition.—Dr. Armendáriz has recently pointed out the following ingredients: Acid resin, 2140; neutral resin, 3026; chlorophyl, 27,500; organic acid (montanoic), 1560; vegetable wax, traces; gum and other principles, 2015; tannin, which colors green the salts of iron; mineral salts, 12,560; cellulose, 22,824; extractive matter, 10,110; essential oil and losses, 4705. Montanoic acid, first described by Professor Federico Altamirano, is considered the active principle of the plant, and to which its influence on the uterus is due.

Physiological Action.—A decoction of the leaves, given by the stomach, causes powerful uterine contractions. Montanoic acid, subcutaneously administered, produces intense pain at the point of injection, and contractions of the arterioles. For the latter effect the dose is .10 gramme, which does not cause toxic phenomena. The vaso-constrictor action of the acid is analogous to that caused by ergot. The difference lies in that zihuapatli acts on the uterus, rather than on the arterioles, to produce a hæmostatic effect. Montanoa, it may be said, causes uterine contractions especially; ergot, contractions of the uterus and of the arterioles; while hydrastis affects the arterioles particularly.

Uses.—Zihuapatli is used to increase the contractions of the gravid uterus and to enhance uterine subinvolution.

PSORALEA PENTAPHILLA (*Linn.—Leguminosæ*).

Habitat.—This plant grows in Querétaro, Guadalajara, Guanajuato, and other places. It is commonly called "contrayerba de Querétaro," or "whitw," or "aromatic contrayerba." The part of the plant used is the root. This appears in the form of a tuberous rhizome, four to eight centimetres long, of a brown color externally and white internally, very feculent, and having a peculiar odor. It is used by the laity as an antiperiodic and for toothache.

Chemical Composition.—According to M. Lozano, psoralea has the following composition: Water, 10,000; salts, 3750; fatty matter, melting at 60° C., 1880; gum, 6806; glucose, 1440; starch, 26,500; albumin, .100; cellulose, 28,750; a crystallizable acid, .400; psoraline (alkaloid), 9250; losses, 6154. Psoraline is a crystalline body of a white color, soluble in water and in alcohol, but insoluble in sulphuric ether, chloroform, and benzine. It has an aromatic odor similar to that of the root, and a bitter taste. It is precipitated by the alkaloidal reagents. With sulphuric acid, psoraline gives a violet color, which passes into green and afterwards into Prussian blue; with nitric acid it produces a light-greenish hue, which is changed to red by the action of chlorine and ammonia.

Physiological Action.—In doves, psoraline, in doses of from .25 to .50 gramme, subcutaneously injected, produces vomiting, muscu-

lar relaxation, and lowering of the temperature, and it may, therefore, be considered as an emetic and antithermic drug (Altamirano). According to the experiments of Dr. Toussaint, made in the Instituto Médico Nacional, psoraline acts as an antithermic by influencing the nervous mechanism centrally.

Therapeutic Uses.—Although strongly recommended by the laity as an excellent antiperiodic remedy, Dr. Torres, who has tried it in the Hospital of San Andrés, found the drug of no value as such. The medicament reduced febrile temperature from 1° to 2° C. in the course of an hour, this depression lasting for about two hours. It has been employed in doses of .016 gramme. Psoraline may be considered as a good antipyretic, since it does not cause untoward effects.

ROUREA OBLONGIFOLIA (*Hook and Arn.—Conaraceæ*).

Habitat.—The common name of this plant is "chililló de la Huasteca." It grows in the States of San Luis de Potosi and Vera Cruz especially, and also in other places. It is a creeper. Its fruits are eaten by certain birds (the species *Penelope purpurascens*), and the bones of these are said to be poisonous to dogs. I have made no observations in this respect. The root of the plant, however, is used to poison dogs, and also for tanning purposes, owing to the large quantities of tannic acid which it contains.

Chemical Composition.—According to Dr. Godoy, who has made a preliminary examination, rourea contains the following substances: Fatty matters, coloring matter, resin soluble in alcohol, resin insoluble in alcohol, tannin in abundance, a bitter principle, glucose, gum, and several other principles.

Physiological Action.—Four grammes of the powder administered to a dog by the stomach have produced tremors, general clonic convulsions, difficult respiration, paralysis, and dilatation of the pupil. These symptoms are slowly developed, appearing in the course of three or four days and lasting for a long time, this being especially the case in regard to the motor paralysis. In the frog, motor paralysis and cardiac disturbances are also observed (Altamirano). The plant has no use in practical medicine at present. It is employed for the purposes already mentioned.

SENECIO EHREMBERGIANUS (*T. W. Klatt—Compositæ*).

Habitat.—This plant grows in the States of Puebla, Zacatecas, Guanajuato, and others. It is commonly called "yerba de la Puebla" and "izcuimpatli." Rio de la Loza gives the following

Chemical Composition.—Water; fatty matters; resin, gum, senecic acid (active principle); salts. Senecic acid occurs as a colorless, odorless, insipid liquid, very soluble in water, alcohol, and sulphuric acid. It reduces by heat the salts of silver, gold, Fehling's solution, etc. It is not precipitated by chloride of iron, chloride of barium, chloride of calcium, lime-water, sulphate of magnesium, etc. It reduces the bichloride of mercury to calomel. It gives no color with the concentrated acids. It easily forms senecates by saturation or by decomposing the carbonates. The alkaline senecates are deliquescent. With acetic acid and a base aceto-senecates are easily formed, these appearing in a crystalline form. This would prove to be the most useful form for pharmaceutical preparations.

Physiological Action.—The aceto-senecate of baryta, after a dose of .40 gramme, subcutaneously administered, produced death in a dog in the course of three hours.

THALAUMA MACROCARPA (*Zuc—Magnoliaceæ*).

Habitat.—Thalauma is popularly known as "yoloxochitl," or "flower of the heart." It grows in the State of Morelos, but particularly near Motzorongo, in the State of Vera Cruz.

Chemical Composition.—According to Dr. Armendáriz, yoloxochitl contains: Fatty matters, acid resin, indifferent resin, essential oil, coloring matter, a bitter extractive, thalaumine, a resinous glucoside, and salts.

Physiological Action.—Experiments made with the extract of the seeds have shown that thalauma alters the red blood-corpuscles, coloring them black, produces phenomena of asphyxia, modifies the pulse-rate and the arterial pressure, and causes also decided nervous disturbances. Death is caused by cardiac paralysis (Altamirano).

Therapeutic Uses.—The tincture of thalauma, prepared from the flowers, is commonly used for palpitation of the heart. At present it is being tried in the hospitals.

THEVETIA ICCOTLI (*D. C.—Apocinaceæ*).

Habitat.—This plant, commonly known under the name of "codo de fraile," or "yoyote," grows in the States of Morelos, Michoacan, and other places.

Chemical Composition.—The seeds—the part of the plant in common use—contain chiefly fatty matters and *thevetin*, a glucoside, the active principle. Thevetin is highly poisonous,

crystallizing in colorless, brilliant plates, having a bitter taste. It destroys sensibility when placed upon the tongue, and it also acts as a powerful irritant to the nasal mucous membrane. Thevetin is little soluble in water, readily so in alcohol, and less so in sulphuric ether. Thevetin is changed into *thevetinine* (?) by acids. This last body reduces Fehling's solution.

Physiological Action.—Thevetin is easily absorbed by the stomach and from under the skin. It acts especially upon the heart. In the dog, in doses of 3 milligrammes, it produces, in the course of fifteen minutes, an irregular pulse, a rise of the arterial pressure, vomiting, insalivation, contraction of the trachea and probably also of the bronchial tubes, a frequent respiration, and phenomena of asphyxia. In about forty minutes there occur a depression of the arterial pressure and paralysis of the heart. It does not cause diuresis. The heart is arrested in systole. In the frog, the heart, before it is finally arrested, undergoes a period of paralysis or partial relaxation of its ventricular walls.*

Therapeutic Uses.—The medical uses of the plant have not been studied as yet. The drug may be classified as an emeto-cathartic and cardiac paralyzant. It appears to be contraindicated particularly in mitral affections of the heart.

CITY OF MEXICO, August 28, 1893.

DIPHTHERIA, THEORETICALLY AND PRACTICALLY CONSIDERED.

A PAPER READ BEFORE THE SCHUYLKILL COUNTY MEDICAL SOCIETY.

BY JAMES STRATTON CARPENTER, M.A., M.D., POTTSVILLE, PA.

THE present trend of scientific investigation in the realm of medicine is towards the discovery of a local cause for disease. It is the supreme effort on the part of investigators to isolate the disease-bearing germ and to learn its natural history,—its *habitat*, its *modus vivendi*,—and in so doing to arrive at the starting-point of the diseased process before it shall have become a systemic affection. *A priori*, if such results were obtainable, it would very naturally simplify our methods of treatment; but practically, as we consider the various results thus far reached by scientific men, can it be asserted that in each instance where a local origin has been satisfactorily determined upon as the source of constitutional infection we have arrived at any surer methods of treatment in that disease, or have observed any lessened mortality as the result of that treatment? Does the discovery of the typhoid germ deserve the credit of the cold-bath treatment instituted by Brandt for enteric fever, a treatment which has certainly robbed that dread disease of its terrors and reduced its mortality to *nil?* Has the knowledge of a pneumococcus in any degree lessened the number of deaths which annually occur from pneumonitis, and is it not a fact that statistics show, if anything, an increased mortality from that disease in these days over what obtained from older methods of treatment, when bloodletting had not yet fallen under the ban of "higher medical criticism"? Given a case of cholera, or of tuberculosis, or of enteric fever, in each of which diseases the specific germ has been determinated, and have we in any respect benefited our patient through the knowledge, experimentally determined, that their respective bacilli stand in a causal relation to each of these diseases? Have we ascertained that the "tuberculin" possesses any power over the tubercular process, and have we thereby acquired any greater control over cholera or enteric fever than might be due to the teachings of a rational therapeusis entirely uninfluenced by any germ theory of disease? Let them isolate the *materies morbi*,—the germ,—make cultures thereof, and inoculate the guinea-pig therewith, producing the same disease from which these cultures were originally obtained, and while an interesting study has been satisfactorily rounded out to its legitimate conclusion, in what respect is suffering humanity aided thereby? The utility of such investigations, it seems to me, must be limited to their bearing upon pathological processes in the light which they throw upon the natural history of disease, as well as the lessons they teach in regard to preventive medicine, but nothing more. As an example, take diphtheria. If there be a disease well calculated to try the resources of the physician to the utmost, and to test his faith in the saving power of medicines, it is to be found here. Attacking its victims often insidiously, it lies in ambush, as

* We may say in this connection that as far back as 1879 an elaborate research of the physiological actions of *Thevetia iccotli* was made by Dr. David Cerna, constituting one of the inaugural dissertations to which a prize was awarded by the University of Pennsylvania. The paper was published in the *Philadelphia Medical Times* of May 24 and June 7, 1879. The chief conclusions arrived at by Dr. Cerna concerning the actions of thevetin appear to be confirmed by Dr. Altamirano. We are also acquainted with the fact that among the laity in Mexico an ointment made with the powdered seeds of thevetia is used in the local treatment of hemorrhoids.—ED.

it were, until with irresistible onset it invades all the air-passages, and, despite every effort made to combat it, proves fatal in an incredibly short space of time; or, with more gradual onset, it makes itself known by the usual symptoms of malaise and fever, and, running a more protracted course, takes possession of all the outposts of the respiratory tract with a tenacity that knows no yielding, until the life-centres, poisoned by the very fluid that should bring renewed vigor, fail to exercise their functions, or the heart-muscle, paralyzed by the baleful effects of the diphtheritic poison, gives up the struggle, perhaps at the very moment when we had esteemed the battle won in the eradication of all the local evidences of the disease. And why should statistics show such terribly fatal ravages of diphtheria in these enlightened days of scientific investigation, when the nature of the disease has been so thoroughly worked out that the Klebs-Loeffler bacillus is regarded by the medical world at large as the causative factor in the disease, and the theory of its local origin is practically unquestioned? Can we regard these investigations of any *real* import to disease-stricken humanity, if, while experimentally determining a specific germ to be the causal agent of diphtheria, the remedy is lacking whereby the system may be freed from that germ before its multiplication within the tissues shall have made cure an impossibility? "The cry of Rachel weeping for her children," and who is not to be comforted by promises of still more extended laboratory research, must be met with something that will insure a lessened rate of mortality in this dread disease of childhood, that destroys far too many victims, if the boasted advances in medical science of to-day are to win the confidence of those for whose benefit they were undertaken.

Does not, on the other hand, a close study of disease itself, and especially of those cases which have proved fatal in spite of the best-directed efforts, yield more substantial fruits than unlimited investigations as to the nature of certain bacilli, and result in more positive knowledge, which means improved methods of treatment, of the diseases in question? We cannot be blind to the good results thus far obtained by bacteriologists, and the world at large must ever remain debtor to such master minds as Koch, Pasteur, and others of that ilk. But we should not, on that account, abandon the direct teaching of clinical investigation, because, forsooth, the latest dogma propagated from the laboratory of even such a man as Robert Koch tends to overthrow that faith which the humblest practitioner should never surrender unless forced thereto by every proof which clinical study alone affords. We must, then, while learning the lessons which bacteriology teaches, not be led astray by that ill-timed enthusiasm which would make of this mortal clay something which even its Creator never purposed it to become,—invulnerable to disease,—but apply those teachings to the best defence of that system which at every avenue we know to be so liable to attack. In other words, the same truism is to be stated here which may be declared of not a few diseases to which mankind is heir: there is no specific remedy for diphtheria. In spite of all the investigations made into the nature of the bacillus of diphtheria, or of the disease itself, no one has yet discovered a single remedy which, *facile princeps*, can in every case successfully cope with that arch-enemy of childhood and cause it to be proclaimed to the medical world as an infallible antidote to the diphtheritic poison. In spite of a general acceptance of the theory of the local origin of diphtheria,—a thesis first defended in a paper read before the American Medical Association at its meeting in Buffalo, N. Y., in 1878, by the writer's father, Dr. John T. Carpenter,—we must yet explain those cases of the disease which arise without any apparent local infection, and thus oppose themselves to that theory, presenting at the onset all the symptoms of a general disease with secondary manifestations in the tonsillar region. Clinical studies, however, including cases of each variety, must, when faithfully carried out, prepare the physician for meeting whatever complications may arise with the best possible measures for the relief of his patient, and, while reposing confidence in no special remedy, lend him such resources as will not fail him when the hour of need is sorest. He will not be biassed, either, towards the local view so strongly as to withhold the much-needed general remedies from his little patient, nor will he neglect the use of those topical remedies which are most certainly demanded in the careful management of every case of diphtheria, even though his prejudices should largely incline him to the belief in the general character of the disease.

These reflections are the expression of the writer's convictions based upon the results of a general practice of the past ten years, covering repeated outbreaks of the diphtheritic disease in which most malignant types of cases have been successfully treated, while others equally malignant have failed to yield to the measures employed for their relief. The treatment of diphtheria pursued by him in the case which must be his apology for this paper will best be

described in connection therewith, and while presenting nothing startling in its novelty, will, he thinks, prove of interest in demonstrating what he believes to be the cardinal principle in the successful management of the gravest of diphtheritic complications,—heart-failure,—viz., the employment of "the ounce of prevention," which, in these cases, is doubly worth "the pound of cure."

CASE.—Edna B., a child of eleven years, was seized with scarlatina in the first week of April, which ran its course without any serious features. In two weeks from the onset of the attack she was convalescent, and in leaving her to maternal care strict injunctions were given that the child should not leave the room until desquamation was entirely completed, as the weather was very raw, and the lower parts of the house so damp that nephritis would certainly follow any such imprudence. Ten days later I was recalled to my patient, and found her again in bed, complaining of pains in her limbs and exhibiting an œdematous condition of the lower extremities. On examining the fauces, both tonsils and the naso-pharynx were found to be covered with a dirty grayish membrane which concealed the healthy mucous surface from view. Urinary examination revealed fifty per cent. albumin and some traces of sugar. A gargle was prescribed containing carbolic acid and Monsel's solution, and, internally, corrosive sublimate, $\frac{1}{24}$ grain every two hours, with a highly nourishing diet, and whiskey as a needed stimulant. For three days this treatment was continued, but was then abandoned, as the ptyalism occasioned by it was so distressing that it was impossible to continue it longer.

In spite of the above measures the disease had steadily progressed, and now the isthmus faucium was completely blocked with what may only be characterized as a hideous mass of gangrenous tissue, which produced a terrible fetor, permeating the atmosphere of the entire dwelling with a sickening odor readily perceptible to one entering the house two stories below that on which the sick-room was situate. The surroundings of the patient could hardly have been worse for such a case. The sick-room was a small partition under the eaves, eight by ten feet, and the ceiling so low that one could stand upright in about half that space. There was but one window for ventilation, but the determined efforts of the child to get well negatived these disadvantages and made up for all the deficiencies of her nursing, as she partook willingly of large quantities of nourishment all through the attack, and submitted to all the measures necessary for her relief, however trying.

When compelled to abandon the use of corrosive sublimate, I felt as though the nearest approach to an antidote to the diphtherial poison that I knew of had been discarded, as I have employed it the past year or two in some very malignant cases and with marked success. Here was as formidable a case, however, as I had yet faced, and the chances of successfully opposing it were, in my opinion, reduced to a minimum when compelled to abandon the mercurial treatment. The diphtheritic deposit extended over the naso-pharynx, and the tonsils and soft palate were completely covered by it, the uvula being enveloped in a gangrenous mass that, with the hypertrophied tonsils, seemed to fill up the entire lumen of the pharynx. The pulse was feeble and very rapid (140 per minute), and the added difficulties of an acute parenchymatous nephritis seemed to render hopeless the indulgence in medication of any sort whatever. The indications to be met presented themselves to me as follows: the direct effect of the unavoidable absorption of so much septic material upon the red blood-corpuscles could only be met with iron, and iron in large doses, frequently repeated, if the desired effect was to be obtained.

Before such a large absorbing surface as that already involved could be freed from the putrid material implanted upon it, the added danger of the probable paralyzant effect of the diphtheritic poison on the heart-muscle must needs be guarded against, a complication that is most fatal in this disease, diphtheritic laryngitis not excepted. I accordingly prescribed the muriated tincture of iron in the dose of 15 drops every two hours and $\frac{1}{32}$ grain of strychnine every six hours, as a commencing dose, and a teaspoonful of brandy every two hours; for topical use, a fifty-per-cent. solution of liquor sodæ chlorinat. was ordered for spraying the throat as frequently as every half-hour, and each morning and evening I made a thorough "swabbing out" of the throat, using the same solution. After the institution of this treatment, as there was no perceptible improvement in the child's condition from day to day, I rapidly increased the dose of the iron to 35 drops every two hours, and the strychnine granules were given every four hours; the brandy was administered each hour, and large quantities of milk and broths were taken each twenty-four hours. Under this increased dosage, continued for four days successively, I at last was able to observe the loosening edges of the gangrenous mass revealing the healthy mucous membrane

beneath, and in two weeks after the relapse noted she coughed up the entire cast of the naso-pharynx, which, unfortunately, I did not see, as the mother, unable to bear the stench, had burned it along with some infected cloths. Inspection showed the throat free from all membranes and *the uvula missing*, dissected out far more neatly than the surgeon's knife could have accomplished it. It is hardly necessary to particularize longer on the progress of this case, except to state that to-day—six months from my last visit—you have seen her perfectly well and entirely free from all traces of her recent illness, save in the absence of her uvula. In spite of the severity of the conditions met with, it is satisfactory to note that there was an entire absence of all paralytic conditions, even the paralysis of deglutition, often observed after mild cases of the disease, having been avoided. The function of the uvula, about which there is as much uncertainty as attends that of the appendix vermiformis, receives no enlightenment from the history of this case, except in a negative way. If, as some writers maintain, it is concerned with vocal function, then certainly its loss would interfere to some extent with vocalization. But there is no such effect to be noted in this instance, the child's voice in no way suffering alteration subsequent to her illness. A study of the principal features of this case teaches us, first, the importance of meeting "the indications" promptly and in a decided manner; and, second, of endeavoring to prevent the occurrence of what is recognized as a fatal complication when it arises,—cardiac paralysis,—by anticipating its onset and guarding against it, so far as may be done, by the use of *strong* doses of that very best of heart tonics in asthenic diseases, strychnine. Having been accustomed to treat all grave cases of diphtheria during the past two years with corrosive sublimate internally, and having saved thereby cases which would certainly have proved fatal under more usual methods of treatment, since I employed it as a *dernier ressort* when "the iron and potassium treatment" had utterly failed to help the patient, I lost no time in using it here. For the first time in my experience with this most valuable remedy was I obliged to discontinue it on account of the ptyalism it induced. And lest the criticism be made of its administration in the dose of $\frac{1}{24}$ grain every two hours, let me state that I always have used it in proportionate doses in every case of the disease. In a recent case of malignant character, where an infant of thirteen months was the patient, I administered $\frac{1}{64}$ grain every two hours, increasing it to $\frac{1}{32}$ grain, as the conditions demanded. The child recovered.

As the necessities of each case we treat must be our guide in the administration of the required remedy, so is it in diphtheria. For a patient suffering with violent pain, we should not think of administering ordinary doses of an anodyne by the mouth, but our first thought would be to control suffering with morphine hypodermically administered, and in such a dose as would meet the requirements of the case. In malignant cases of diphtheria the system shows a tolerance for the bichloride that is surprising, and it can be persisted in without fear so long as the septic conditions demand its continuance. My experience with it has convinced me that it is the remedy on which the greatest reliance may be placed, and when, as in the present instance, its constitutional effects are unfavorably manifested, there must be an idiosyncrasy on the part of the patient explanatory of it.

Obliged to discontinue this remedy, then, to what could I turn but to the iron and chlorate of potassium treatment? The latter was contraindicated on account of the coexistent desquamative nephritis, and if the chloride of iron were to accomplish any good at all, it must be from heroic doses. A tolerance of 15 drops was obtained as a commencing dose, and rapidly increased to 35 drops, every two hours, before the desired change in the patient's condition was noted, and not until several weeks after the entire disappearance of the membrane from the throat was the dosage lessened.

The second point which, in the writer's opinion, should be dwelt on more prominently by the authorities on children's diseases is the necessity for the early administration of strychnine in all cases of severe diphtheria. The two complications which are most to be feared in this disease are diphtheritic laryngitis and paralysis of the heart-muscle. In the former, whenever it may occur, we have the operation of tracheotomy as a possible remedy; in the latter we are utterly powerless when taken by surprise, and nothing can avail to save the life of our patient. Strychnine, however, when early administered and pushed even to the manifestation of its physiological effects, is amply sufficient for this terrible crisis, and has certainly been the means in my hands of averting a fatal termination in not a few instances. In the case under discussion the pulse-rate reached 160 to 170 per minute, and maintained that rapidity for several days, but the heart was all the while under the tonic and sustaining influence of the strychnine, and eventually that run-

away organ was brought under control. In another case of this disease, which terminated fatally from diphtheritic laryngitis eleven days after its seizure with scarlatina maligna (the patient an infant of eighteen months), finding the heart-muscle failing, $\frac{1}{60}$ grain of strychnine was given, the dose being increased to $\frac{1}{45}$ grain, until the extended head, rigid in tonic spasm, warned me that the full effect of the drug was obtained at the same time that the danger of cardiac paralysis was overcome; but for the extension of the membrane to the larynx several days later, it would certainly have saved the little patient's life. And not only in diphtheria, but in every instance where the failing pulse evidences the more dangerous condition of a failing heart-muscle, should strychnine in large doses be depended on as the sovereign remedy. In the latter days of typhoid fever, when we find a degenerated heart-muscle weakening under the continued strain of a high temperature, strychnine is especially valuable. In a recent case of this disease I employed it in the dose of $\frac{1}{20}$ grain every four hours for several days, with the result that my patient, a young man of twenty-eight years, is now in good health, instead of having succumbed to what bade fair to be a fatal collapse when this drug was resorted to. It is true that there was some feeling of uncertainty as to his tolerance of such a dose, and on the third day a fully-developed *risus sardonicus* gave me a hint that I did not fail to act upon.

Together with strychnine as a safeguard against cardiac failure, a rigid observance of absolute rest on the part of the patient must be enforced. The head should not be permitted to be raised from the pillow, and the slightest exertion should be guarded against, not only during the attack, but for as long a time subsequently as the heart action, by its abnormal rapidity or other features, may indicate the need of care and watchfulness. In this way alone may we insure ourselves against possible accident.

What, then, has "the local theory" done for diphtheria? may well be asked. Are there many, like the physicians in charge of the Friederichshain Hospital, of Berlin,* who, with the courage of conviction, have instituted no drug treatment for the management of diphtheria the past two years? Accepting the local theory in its fullest meaning, *local* treatment only is their cry, let constitutional needs take care of themselves as best they may! "And yet there were sixty-four per cent. of cures," it is remarked, whether surprisedly or in a commendatory way the reader is permitted to decide for himself. Are there many who will assume such a responsibility as this in defence of theory, and calmly withhold the needed cardiac stimulants from a system debilitated by disease, although they may find local measures powerless to prevent a constitutional infection and all that is entailed thereby? And yet that is the logical outcome of the position taken by the germ theorists to-day, if we are to believe all they would lead us to infer. Their theories are plausible, but when weighed in the balances of actual clinical experiment they are found wanting. How many of the sixty-four per cent. of cures recorded in this disastrous experiment were mild cases and what proportion of the thirty-six per cent. of losses were of malignant character the report does not show; but if this be the result of what *a local treatment only* in diphtheria is able to effect, it can never be satisfactory to him whose efforts are directed towards the employment of the most rational procedures in the never-ending conflict with disease. The writer of this article regards anything beyond a five per cent. mortality in diphtheria as more than he is willing to confess himself responsible for, and responsible only because his utmost efforts, both in the direction of a local and systemic treatment, failed to overcome all the difficulties in the way; while, if he omits those cases of diphtheritic laryngitis from his table of losses, where operative interference was refused by the parents of the child, his mortality would sink to an insignificant figure. During the past two years only one case has proved fatal out of a large number of severe and so-called malignant forms of the disease, a result due almost entirely to the employment of the bichloride of mercury treatment.

As there is no "specific" for the diphtherial poison, we must occasionally meet with cases that will defy our best efforts; yet the battle has not been well fought, the best interests of our little patients have not been loyally upheld by any one who fails to perceive *all* the aspects of each case that comes under his care, and who neglects to guard against every pitfall that lies scattered along the course of this disease. It is a gantlet that must be run by the tottering feet of childhood, in the large majority of cases, and every step of the perilous way should be provided for by the physician, since nature furnishes no defence to these little patients of themselves. And he who is unmindful of the dangers to be met, improvident for the future demands of the system for strong support, will

* THERAPEUTIC GAZETTE, January, 1894.

surely find that the moment will come when the wearied heart fails for lack of the much-needed stimulant, and another victim will be sacrificed, either through simple failure to protect his charge against possible misfortune, or, worse, through a blind adherence to a theory which contraindicates the employment of internal medication because experimentation has determined that *local* measures alone are compatible with the pathogenesis of this disease!

To sum up the whole matter, there can be, of necessity, *no routine treatment* for the disease. Some cases may require only local measures to arrest the disease, but even in these rest in bed should be insisted upon as of, perhaps, vital import to the patient. Heart-failure is equally possible in the mildest and the severest forms of the disease. One case the writer recalls, where a bright little child complained of "sore throat," but was not thought to be sick enough to be kept in bed by the attending physician, a homœopath, and while at play in the sick-room several days later suddenly died in syncope. The circumstances attending the death of the late Bishop Brooks are of so recent occurrence as to need but brief mention. Suffering from a slight cold and "sore throat," he was not supposed to be in any condition necessitating anxiety until the fatal attack of heart-failure was induced through a prolonged attack of coughing, the weakened cardiac organ, primarily affected by the diphtherial poison, not being able to bear the strain thus brought upon it. Are these examples not amply illustrative of the necessity for rest even in the mildest forms of the disease? And do they not also teach the futility of local measures being depended on to combat the general features of the disease? Is it reasonable to expect that topical applications to the throat are going to favorably affect a weakened heart-muscle, or prevent the catastrophe when the already damaged heart may be called upon for some unexpected exertion, or to withstand some unforeseen burden? Certainly not. If, then, the indications plainly point towards the need of rest in bed, even in mild cases of diphtheria, and the administration of such a heart-tonic as strychnine as a safeguard against heart-failure, when we come to the malignant cases can we in reason refuse to meet the symptoms of general septic infection with their appropriate remedies, and say we shall first destroy the local cause of this outbreak by the proper local treatment, and utterly fail to take note of anything beyond? Local treatment is of value here, as a matter of course, but it must be supplemented by measures designed to overcome the septicæmia occasioned by the local lesion. It is in these cases that the bichloride treatment has been of especial value, accompanied by full doses of alcohol. But where, as in the case reported, mercury cannot be tolerated, then iron in heroic doses must be the dependence, and pushed to the fullest limit of tolerance by the stomach. By such measures as these may we hope to lessen the mortality-rate of this disease, and, unfettered by any blind devotion to a theory, work out the salvation of those intrusted to our care without fear and trembling, but with the fullest prospects of ultimate success.

WHAT CAN BE DONE IN THE DIAGNOSIS AND TREATMENT OF GASTRIC DISEASES WITHOUT THE USE OF THE STOMACH-TUBE?

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THIS question was brought forcibly to my attention by the remark of a physician who was hesitating before submitting to lavage. "Doctor," said he, "remember that a doctor doesn't like to be hurt." In this sentence, a capital illustration of the fact that a sick physician is not the ideally passive patient whom we like to encounter, was implied the aversion which nearly all patients feel to the use of instrumental or mechanical means of treatment. Objectively considered, the stomach-tube is almost absolutely safe and reliable; its use requires rather the skill of experience and good judgment than manual dexterity; it clears up, by the aid of chemical tests and inspection, the mysteries of a diseased organ; it is a valuable and rational therapeutic agent. From the patient's point of view, however, the passage of the tube is an extremely disagreeable, if not actually painful, procedure; it is more or less shocking to an æsthetic nature, and it is regarded almost as a last resort. The professional and, to an increasing degree, the lay conception of the physician who essays to treat stomach troubles in a modern and scientific fashion, is as an appendage—a very intelligent and important one, no doubt, yet distinctly an appendage—to a long, smooth rubber tube. In regard to the feelings of the patient, I believe that a middle course should be adopted between a weak concurrence with every whim and aversion and an arbitrary demand of absolute compliance with dictates which may be quite as

much whims as any notions of the patient. It is often wiser, after having given our advice conscientiously and clearly, to allow the patient to select a slower route to health or a less radical cure, if the sacrifice, in his opinion, is compensated for by additional comfort or safety or by an important pecuniary or social advantage. It is, at any rate, interesting and profitable to note the limitations to the use of the stomach-tube and, by contrast, the circumstances under which it becomes of paramount value.

The factors to be studied in a diseased stomach are (1) sensation, (2) absorption, (3) motion, (4) secretion, (5) organic changes, (6) foreign elements.

The sensation of the stomach, whether normal or perverted, can, of course, be determined only from the statements or gestures of the patient, although we must discount the overdrawn descriptions of suffering on the part of the hysterical and perhaps add to the phlegmatic utterances of others.

Absorption is estimated by the administration in capsule of .10 to .20 (ten to twenty centigrammes) of potassium iodide, which is quickly dissolved, and is eliminated in the saliva in from eight to fifteen minutes normally. This time includes the delay of melting the capsule, dissolving the salt, its absorption, circulation, and elimination, and the expulsion from the mouth. In order to have as little variation as possible, the following details should be attended to: The capsules must be thin in order to melt quickly;* they must be freshly filled in order to prevent deliquescence. The patient must swallow the capsule quickly, with a constant quantity of water at a uniform temperature. The outside of the capsule must be free from iodide, and it is well to test the saliva immediately after swallowing to make sure that no iodide has escaped directly into the mouth and that there is none in the system from previous medication. The saliva is taken in test-tubes at three- to five-minute intervals. One or two drops of nitric acid are added to each tube to liberate iodine, and a little starch-paste or dried scale of starch dropped in. The starch forms with iodine a beautiful purple or blue tint,—purple if very little iodide has been eliminated, blue if the reaction is more marked. To save time I sometimes give patients a set of vaccine vials in their wooden cases, numbered 5, 10, 15 to 30 (minutes), and have the saliva brought to me for the tests.

The motor power of the stomach, or rather the peristaltic movement which empties the viscus, is tested by administering salol, which remains unchanged in the acid juice of the stomach, but is decomposed into its salicylic and carbolic constituents in the alkaline secretion of the small intestine. Thence the salicylic acid is absorbed; it passes through the portal, pulmonary, and aortic circulation, reaches the kidneys, and is eliminated in the urine. This process, like that of the iodide test, is complex, yet so rapidly are the vital functions performed that salicylic acid is found in the urine long before the bulk of the stomach contents have passed through into the intestine. Therefore, notwithstanding the delay of overcoming the acidity of the chyme in the duodenum and the devious course from intestine to bladder, the test represents the first leaking through the pylorus. The salol is given in powder or wafer with the last mouthfuls of the meal. Usually a gramme is given, but this dose has caused death in one instance, and I have found fifty centigrammes sufficient. To prevent too great dilution I direct that the urine be passed immediately after the meal and thrown away. The urine should then be saved forty-five minutes, one hour, one hour and a quarter, two hours, and three hours after the meal. With the 50-centigramme dose of salol salicylic acid is found occasionally in the forty-five minute samples, in the majority of the hour samples, almost always in the hour and a quarter samples. The urine passed from two to three hours after a meal usually gives the most marked test, thus supporting the old idea that two or three hours is the time to be allowed for gastric digestion in estimating the intervals of feeding with light diet or in administering remedies designed to act particularly on the intestine.

Although experimentation by Ewald and others has shown that one hour and a quarter is the extreme normal limit of delay in the excretion of salicylic acid, it has not been proved that the delay is due solely to insufficient gastric peristalsis. Huber has proposed to modify the test by determining the time at which salicylic acid finally disappears, and he considers that if it is found more than twenty-four hours after the meal with which one gramme of salol is taken, the stomach is deficient in motor power. Yet in a case of non-acid dyspepsia in which salicylic acid appeared in the urine only

* I was recently furnished with capsules which required twenty-five minutes to melt. To guard against error from this source, it is well to make a control test in lukewarm water, coincident with the experiment on the patient.

half an hour after the meal at which fifty centigrammes of salol were given, I found the same reaction in several samples of urine voided at various times up to forty-eight hours. Here were contradictory results, which I would explain on the ground of insufficient intestinal absorption or of some delay in elimination. The case was cured by attention to the general health and by supplying the needed hydrochloric acid for a week or two.

The test for salicylic acid is very simple. To the urine in a test-tube or in an ordinary vessel add, drop by drop, a solution of ferric chloride. The tincture will prove satisfactory, though the liquor is usually recommended. The principal source of error consists in adding too much ferric chloride. In the presence of salicylic acid a cloudiness and then a purplish-red color develops.

Some idea of the motor power of the stomach may be gained from the general musculature and energy of the patient, but the inferences may be fallacious.

The tube affords comparatively little information as to the movements of the stomach. One patient may force a jet of water out of the stomach, through the tube and across the room, while another may be unable, even though retching violently, to do more than alter the level of fluid in the funnel. The natural inference is that the former is strong, the latter weak, in his gastric muscles, but nervous excitability, reflex contraction, and the auxiliary abdominal and diaphragmatic compression have much to do with the phenomenon, and, after all, the throwing of a jet of water is only an athletic feat of the stomach and no guarantee that its normal work will be properly performed.

Klemperer has proposed to introduce a hundred cubic centimetres of pure olive oil into the stomach, and, after two hours, to siphon away what remains and compare the diminution in volume with a standard. Klemperer himself admits the inconvenience of this method, and it would seem impossible to rely on getting any positive results from the use of so small a quantity of fluid, which, nevertheless, is twice the usual purgative dose of olive oil. I have several times heard watery solutions rushing through the duodenum during lavage, and have removed much less than was introduced. In one case I kept a record of the amounts of water used so as to determine the loss. In each instance the water was siphoned away as soon and as thoroughly as possible, and thus loss by absorption was reduced to the minimum.

Lavage Six and a Half Hours after Eating.

Introduced. Cubic centimetres.	Removed. Cubic centimetres.
1200	600
1600	1150
1400	1250
1400	400
200 (stoppage by raisin dislodged by the 200 cubic centimetres).	750
5800	4150 = 1650 cubic centimetres lost.

Lavage Two Hours after Breakfast of Piece of Bread.

Introduced. Cubic centimetres.	Removed. Cubic centimetres.
1600	1175
1400	1200
1600	1400
1600	1400
1600	675
400	900
400	650
400	350
400	400
9400	8150 = 1350 cubic centimetres.

Lavage; Stomach Empty.

Introduced. Cubic centimetres.	Removed. Cubic centimetres.
1300	1150
1600	1100
2000	1600
1600	1400
400	325
6900	5575 = 1325 cubic centimetres.

The conclusion is, that during the course of ordinary lavage in a person with only functional trouble, about fifteen hundred cubic centimetres of water were lost, doubtless partly by absorption, but largely by passage into the intestine. Now, while the olive oil would be practically unabsorbable from the stomach, its stimulant action on peristalsis would be relatively greater than that of water, and we would expect most of so small a volume as one hundred cubic centimetres to disappear in the course of two hours. However, it must be admitted that, if in any given case a considerable quantity of the oil could be recovered after two hours, it would be the best possible proof that the stomach was deficient in motor power. Unfortunately, the converse does not hold good, for we should expect even an inactive stomach to get rid of one hundred cubic centimetres of a fluid used elsewhere in therapeutics for the stimulation of peristalsis.

The conclusion seems obvious that the stomach-tube is practically useless for deter-

mining the motion as well as the sensation and absorption of the stomach, except that the chemical examination of the stomach contents assists in determining the motor and absorptive power. It is in the investigation of the remaining functions of the stomach,—the secretions and the course of digestion,—that the tube becomes important. It is a truism that chemical processes can be determined only by chemical tests. The alternative confronts us, therefore, of proceeding by guess-work or of obtaining a portion of the stomach contents for analysis. We may get a sample of chyme by inducing vomiting, by having the stomach-bucket or sponge swallowed and withdrawn, or by expression and suction through the stomach-tube. Of these means, the use of the tube is by far the least distasteful and the most practical. Still, in weak patients with irritable stomachs, who vomit frequently, we may avail ourselves of the stomach contents accidentally furnished and avoid the use of the tube.

Günzburg has proposed to estimate the rapidity of albuminoid digestion without recourse to the tube, by giving 10 to 20 centigrammes of potassium iodide in a closed gelatin capsule or in a small piece of rubber-dam tied with fibrin. When the gelatin or fibrin is digested, the iodide is liberated and then absorbed, and eliminated in the saliva. Günzburg's test, however, is like an equation with three unknown quantities. Finding iodine in the saliva tells us that the fibrin or gelatin has been digested and the iodide absorbed. But we do not know how much time has been consumed in absorption, nor how much hydrochloric acid there is in the stomach, nor what proportion of the albuminoids ingested has been converted into propeptone and peptone. Very often the filtered stomach contents, an hour or an hour and a half after eating, will contain a mere trace of albumin and propeptone and an abundance of peptone. So far the examination would indicate perfect digestion, but further tests and inspection will show an absence of hydrochloric acid and unchanged pieces of meat. The digestion of a thin film of gelatin or of a fibrin thread is no guarantee that there is enough acid left for the digestion of ordinary proteid foods. Thus, while Günzburg's test may give a fairly good general idea of the course of albuminoid digestion, it is neither analytical nor reliable.

Fats and carbohydrates are, in one sense, foreign elements in the stomach, since they are not digested by the gastric secretions. Sugars, being soluble, are normally absorbed from the stomach within an hour. Starch, whose cellulose has been ruptured by cooking, should be digested by ptyalin in the stomach, also in the course of an hour, and the glucose resulting should be absorbed as soon as it is formed. The statement so often made that no starch should be found in the stomach contents more than an hour or so after eating applies to the standard meals of meat and cooked starch, but does not apply in cases in which bananas or any other form of raw starch has been taken. Raw starch must, of course, remain such until the stomach empties itself into the intestine.

Although I have said that our ideas of gastric secretion and digestion are reached by guess-work, unless we obtain a portion of the stomach contents and subject it to analysis, a little consideration will show that the word *guess-work* is used in no invidious sense, for, until the last few years, there was no other means of knowing the condition of the stomach, and there are few deeply-situated organs whose diseases we can even now diagnose except by inductive reasoning from present symptoms to pathological states previously observed post mortem. The questions which we aim to answer by chemical examination of the stomach contents are, in brief, these: 1. Are the fats and carbohydrates innocuous, or are they fermenting? 2. Are cooked starches changed into absorbable grape-sugar as rapidly as normal? 3. Are the three secretions of the stomach—rennet, pepsin, and hydrochloric acid—present in proper amounts, and do they properly digest albuminoids into peptone?

The first question is answered unfavorably by finding bacteria and yeasts microscopically and butyric and acetic acids chemically in the stomach contents. But, knowing that fatty and starchy substances have been taken, that certain foods of these classes habitually cause trouble, finding the stomach tympanitic with gas, and noting the eructation of sour gas or liquid, in which we may smell butyric and acetic acids, the diagnosis of fermentation is quite as well established.

The second question—as to the change of cooked starch into sugar—is not in itself an important one. If the pancreas can provide for any reasonable quantity of raw starch, it will probably not be overtaxed if the salivary function also devolves upon it. If the saliva is suspected of being at fault, let the patient chew a bit of raw potato, and spit into a test-tube, in which, after a few minutes, the ordinary sugar test will show whether or not enough ptyalin is secreted. Ewald's experiments have failed to find a single case of salivary incompetency even in patients with advanced dental caries or malignant disease of the mouth.

Failure of starch digestion in the stomach signifies, therefore, inhibition by some abnormal factor, which in most cases is an excess of hydrochloric acid or the presence of acid fermentation, both of which are included in the other two questions.

The third question—referring to the three secretions of the stomach—is the most important, but even this can be narrowed down in practice. Rennet is a substance of which we know almost nothing of practical importance. Ewald barely alludes to it, and his translator, Manges, sums up the researches of Raudnitz, Boas, Johnson, Klemperer, and Rosenthal in one sentence: "The result of these investigations is that rennet, like pepsin, is a constant constituent of the gastric juice, its absence indicates atrophy of the gastric mucosa; otherwise it has no practical significance." Quite frequently in infants, and occasionally in adults, there is noticed a tendency to the formation of large, hard curds from milk foods. I have in mind a woman aged forty, who vomited curds as large as butternuts, and with the toughness and peculiar agreeable odor of artificially prepared cheese-curd. This case was treated by temporarily withdrawing milk from the diet. I know of no means of determining clinically the exact excess of rennet—if, indeed, the question is a quantitative one—nor of directly modifying its secretion. Certainly the stomach-tube would have been useless to remove such large, hard masses.

Pepsin, like rennet, is an organic but unorganized ferment, a little of which seems to act as well as a good deal. It is almost always present in the stomach, and therefore it is rarely necessary to test for it. It likewise follows that its administration should be equally rare, but the great commercial value of pepsin shows how little this physiological principle is carried out in practice. Pepsin is the trump-card of a number of leading manufacturing pharmacists: their agents, so far as I can judge, are genuinely surprised to find a physician who uses pepsin in only two or three cases a year. Certainly, if the wholesale drug-houses had any fears as to the salability of pepsin, they would have it indorsed by those prominent physicians, who stand ready at all times to obtain successful results from new drugs, in blocks of twenty-five assorted cases. To give force to my own protest against the indiscriminate use of pepsin and to justify the suggestion that we may usually disregard it, let me call two witnesses. Ewald says, "To-day we know that pepsin is present in a very large number of cases, even when free hydrochloric acid is absent. . . . We should, therefore, restrict its administration to those cases in which its absence can be actually proved,—that is, to cases of advanced mucous catarrh and of atrophy." A. Lockhart Gillespie, of Edinburgh, in an article in the *International Medical Magazine* of October, 1893, expresses himself thus: "The determination of the presence of pepsin need be done only in very exceptional cases. Pepsin is rarely absent from the stomach contents. The amount of quackery indulged in in the prescribing of pepsin preparations is marvellous."

The conclusion seems obvious that the most important fact to be determined in the investigation of the gastric chemistry is the quantity of hydrochloric acid. It is even possible to classify the organic diseases according to the increase or diminution of this secretion. Gastritis of all grades, carcinoma, and usually dilatation are marked by a downward tendency in the secretion of this acid; ulcer by a marked increase.

Acute gastritis means corrosion of the stomach, either by hot water or some similar traumatism, or by an active poison. So far as the gastritis itself is concerned, the stomach-tube is clearly contraindicated. Although the old-fashioned stomach-pump is popularly associated with stories of poisoning, any form of tube is likely to become clogged, and the poison is usually best ejected by inducing vomiting. The comparatively rare cases in which narcotism prevents the action of emetics, or in which there may be a question whether the weakened stomach-wall would not be less strained by siphonage than by the act of vomiting, will not be discussed here. Subacute gastritis can scarcely ever require the tube, either for diagnosis or treatment, unless it is excited by foul fermenting soft masses. Chronic gastritis can usually be diagnosed from the state of the circulation and the history of the case; still the tube is desirable in order to verify the diagnosis, and is invaluable for treatment. Copious hot alkaline drinks taken before meals are of some service in stimulating the sluggish circulation and in washing away the tenacious mucus which dams up the feeble secretion of the glands, but one experience with lavage will teach us that the stomach must be filled and emptied several times before it is properly cleansed. Lavage with menthol vapor I have described in previous papers, and, although it would be egotistical to claim more than a further trial of this mode of treatment, it has seemed to do good in a number of cases of catarrh of the stomach.

Dilatation of the stomach can be diagnosed without the aid of the tube, although the alternation of tympany and flatness and the metallic tinkle of bubbles bursting in the half-filled stomach are valuable tests, possible only when the tube is used. In the treatment, the tube is almost indispensable to relieve the concomitant catarrh and to remove undigested remnants of food. Still, much good may be accomplished by giving predigested foods and antiseptics.

In cancer the continued absence of hydrochloric acid, as determined from the analysis of the gastric contents, is diagnostic but not pathognomonic, as was at first claimed. Few cases of cancer fail to present other indications of their nature, and, without confirmatory evidence, the non-acidity would scarcely warrant a positive diagnosis. Yet there are cases in which every hint as to the true condition must be eagerly sought. All treatment, except possibly operative, is palliative, yet the tube is useful for the treatment of the accompanying catarrh and fermentation. However, there comes a time when any mechanical interference is dangerous.

Subacidity, or occasionally non-acidity, is the usual condition in what may be termed, loosely, atonic dyspepsias. Yet, in the same day, two young married women consulted me, giving almost identical histories of gastric disturbance. One case proved to have a sufficient secretion of acid, the other almost none. Under different treatment both cases were relieved, showing that the conditions were essentially different. Thus it must be borne in mind that, although eighty or ninety per cent. of our dyspepsia cases will be relieved by the administration of hydrochloric acid, in each particular case we run a corresponding risk of ten or twenty per cent. of giving inappropriate treatment unless we examine the stomach contents.

Moreover, there is an acid neurosis, which we in Buffalo should never forget, since its clinical picture is so largely the delineation of our fellow-member, Professor Charles G. Stockton. This condition of supersecretion of hydrochloric acid may be suspected from the occurrence of dyspepsia in a neurotic individual, from the account of sharp gastric pain temporarily relieved by taking food, from highly acid eructations, and from the general characteristics of a state of over-excitement rather than depression of an organ. Still, the diagnosis needs the confirmation of chemical examination. The same neurosis culminates in peptic ulcer. The occurrence of a large hemorrhage scarcely needs the assistance of the tube to establish the diagnosis, and the treatment both of the neurosis and of the organic lesion consists of physiological rest of the stomach and such remedies as shall calm the overwrought secretory nerves. Ewald dismisses the question of using the stomach-tube in gastric ulcer with these words: "I refrain from introducing the tube in all cases of ulcer in which the diagnosis can be made in another way, and I do so, so much the more, since in these cases the examination of the stomach contents does not establish the diagnosis and since it does not aid us in the treatment."

In this review of well-known methods of diagnosis and treatment, the stand-point has been assumed of one who for some reason does not wish to use the stomach-tube. This reason may be excellent or it may be the poorest kind of an excuse. Do not understand me as deprecating the use of one of our most valuable aids to diagnosis and treatment, because I have endeavored to show how far it is unnecessary and how well we may diagnose and treat gastric diseases when some emergency or obstacle deprives us of this aid.

LAVAGE IN THE TREATMENT OF GASTRIC DISORDERS, ESPECIALLY IN DISPENSARY PRACTICE.

By Julius L. Salinger, M.D.,

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THE mechanical treatment of diseases of the stomach is of very ancient origin. The Greeks were familiar with several methods of artificially evacuating the stomach. During the Roman empire a number of appliances had been invented to produce emesis. Among the most familiar ones was the vomiting feather of Pinna. Another equally well known instrument was the digitale vomitorium, a piece of soft leather, shaped like a finger, one end remaining open so that it could admit the finger, the other end stuffed with wool, being about ten to twelve inches in length. This was introduced into the pharynx and part of the œsophagus, and vomiting promptly followed. In the eighteenth century elastic catheters were used to introduce food and medicaments into the stomach. This was, perhaps, the origin of the stomach-tube. Hunter was familiar with this procedure. Bush, an English surgeon, was the first to actually use the stomach-tube, and he may be termed the inventor. In a case of opium-poisoning he inserted a long elastic tube

into the œsophagus and stomach, filled the stomach with water, then attached an ordinary syringe and pumped out the diluted contents. In the early part of the present century a number of instruments were invented by Jukes, Ward, Read, and others to serve as stomach-pumps. These appliances were, however, never in general use. It remained for Kussmaul, in 1867, to call attention to the treatment of gastrectases by lavage, and to again introduce the use of the stomach-pump and tube. Since that time numerous other uses have been found for the stomach-pump as well in diagnosis as in treatment, and many additions have been made to our literature, in which the mechanical treatment of the stomach has received the attention that it merited. (Leube, "Die Magensonde," Erlangen, 1879.)

The instrument now generally employed in lavage consists of a soft-rubber tube (about No. 32 of the French scale) with a funnel-shaped arrangement at the top to facilitate the introduction of liquids. Plain water, preferably lukewarm, is all that is usually required, although antiseptic antifermentative substances of all kinds have their special indications, such as salol, boracic acid, hydrogen peroxide, etc.

The method of using the tube is quite easy. The patient is told to open his mouth as wide as possible, the tube is placed over the base of the tongue into the pharynx, and he is told to swallow; while deglutition is going on, the tube is speedily, though gently, pushed down the œsophagus into the stomach. About eighteen to twenty inches is all that is generally required, and usually the tube has a circle marked upon it to indicate that it has entered the stomach. The patient soon becomes accustomed to the operation, and after the first or second trial it gives him no further inconvenience. In nervous or irritable patients the throat may be painted with a four-per-cent. solution of cocaine before using the tube. A dose of 30 grains of potassium bromide on the night previous to the morning on which the tube is to be used has proved of great value in the writer's hands to check the irritability of the throat and the general nervous manifestations of patients undergoing treatment by lavage.

Before using the tube the patient's throat should be carefully inspected. Stenosis of the pharynx, due to large hypertrophied tonsils, tumors, and cicatrices, may be absolute mechanical hinderances to the introduction of the stomach-tube. Never, under any circumstances, should force be used. Examination of the organs of respiration and circulation is also necessary. Valvular disease of the heart, aneurisms, especially of the aorta, large pulmonary cavities, acute and chronic catarrh of the larynx, are contraindications to the use of the tube. In some instances symptoms of laryngismus stridulus and fatal syncope have been reported where these conditions have been overlooked.

The advantages of the use of a soft elastic tube over a hard and unpliable instrument are obvious. No injury to the soft parts of the œsophagus or stomach can result from the use of a soft instrument. Blood has never been noticed in the washings, as frequently occurred where a hard and stiff instrument has been employed. The soft tube is more durable and less liable to break than the gutta-percha sound (the ordinary hard instrument used). The soft tube also has some disadvantages. There are cases, especially in irritable patients, in which the tube, upon its introduction into the pharynx, readily curves and bends. In such instances the use of the soft tube is almost impossible without the assistance of a local anæsthetic (cocaine). With ordinary care there is little or no danger of entering the larynx with the stomach-tube.

The stomach-pump is now rarely employed, the tube taking its place for all practical purposes. The indications for lavage are twofold: first, as to diagnosis; secondly, as to treatment.

For diagnostic purposes, lavage is of use to determine the quality and quantity of the gastric juice. The quantity of fluid that the stomach will contain can be accurately determined by pouring in a known quantity of water and filling the stomach to its fullest extent. Thus a positive diagnosis of dilatation of the stomach may be made. A test-meal may be given, and after a certain time the stomach may be washed out and the progress of digestion conclusively ascertained. By an examination of the gastric juice by means of chemical tests the presence or absence of normal or abnormal acids, pepsin, and other ferments may be detected. The relation which the gastric juice bears to normal or pathological conditions of the stomach is too well known to require further elucidation.

The most important use of lavage is, however, from its therapeutic stand-point. This mechanical treatment has for its object the elimination of injurious or toxic agents, be they introduced as such or afterwards undergoing such changes in the system as may render them harmful. The diseased mucous membrane of the stomach is directly treated, and

the diminished or lost contractibility of the stomach is favorably influenced. Lavage may, then, be employed in cases of poisoning, either alkaloidal or mineral, in acute or chronic gastritis, and especially in cases of dilatation of the stomach. It is also of decided use in the treatment of peptic or round ulcer of the stomach, in all varieties of pyrosis, cardialgia, and malignant disease of the stomach. Its employment in carcinoma of the stomach is beneficial from the fact that such disease is mostly situated at the pyloric extremity of the stomach, and by its narrowing of this orifice gastrectasis results.

It is the object of this paper to call attention to the treatment of gastric diseases by lavage in dispensary practice. Seventy-four cases in all were treated during a period of four months, from September to January. They were cases of gastric derangement, presenting general dyspeptic symptoms, such as constipation, pyrosis, headache, etc., in which the usual remedies generally prescribed had proved ineffectual. The patients with alcoholic histories were separated from the non-alcoholic. Of the total number, forty admitted the excessive use of intoxicating liquors; two were cases of gastric cancer; three had cirrhosis of the liver, with marked gastric involvement.

In all the cases (seventy-four) so treated, failure to introduce the tube occurred in but seven, and in most of these the fear of having a foreign body thrust down their throat was the principal cause of the failure. No medicine was given, the treatment depending entirely upon lavage. In none were any bad results observed due to the use of the tube. The results may be briefly stated as follows: marked improvement resulted in fifty-two, some improvement resulted in eight, no improvement resulted in four; three cases did not return for treatment.

The most marked results occurred in the patients with alcoholic histories. The acid eructations, the flatulency, the oppression in the gastric region, and in many the obstinate constipation were relieved from the beginning. The improvement was so noticeable that the patients would come and frequently ask for a repetition of the treatment. Quite as gratifying temporary results were obtained in the cases of malignant disease of the pylorus. The history of one of the patients is quite interesting, and a brief account may be here given:

Patient—man aged fifty-seven—had for four months complained of pain in the epigastrium, which had gradually increased in severity. About the same time, vomiting, usually occurring about two hours after meals, had manifested itself. The vomited matter consisted of the food that the patient had taken, in a state of more or less active fermentation. Only once had "coffee-ground" vomit appeared, and that at about the third month of the duration of the illness. The patient had lost thirty-two pounds in weight, was markedly emaciated, and somewhat cachectic. On physicial examination, the heart and lungs were found normal, and on palpation of the abdomen a tumor was noticed about the size of a large lemon, occupying the position of the pylorus, exceedingly tender upon even slight pressure. The tumor was not movable upon manipulation. The patient had only within a week noticed the tumor. He was given a test-meal, and free HCl could not be demonstrated by any of the accepted tests. His urine showed nothing abnormal. His temperature, taken at different intervals on succeeding days, showed a slight subnormal tendency,—97.5° to 98° F. A diagnosis of malignant disease of the pylorus was made and lavage ordered. It was found that the stomach would retain with ease five pints of water, although this quantity of fluid produced slight pain. The patient had in all thirty-four washings. He was benefited from the first lavage, the urgent symptoms of which he complained being almost entirely removed, such as cardialgia, pyrosis, flatulency, vomiting, etc. He returned one morning, saying that he considered himself well and did not require further treatment. After an absence of six weeks from the clinic, he again presented himself, with the reappearance of his former symptoms, and urgently begged for treatment.

This case is only mentioned to show what relief, although only of a temporary character, can be obtained in malignant disease. It is easily understood how, in cases of malignant pyloric disease with stenosis, and consequent dilatation of the stomach with gastric catarrh, good results are obtained by lavage. The majority of the symptoms occasioned by malignant gastric disease are due to the dilatation of the stomach with the associated gastric catarrh, and in these conditions lavage is the remedy *per se*.

Beneficial results were also obtained in cirrhosis of the liver with secondary gastric manifestations.

When the character of the ordinary dispensary patient is considered, the lack of proper hygiene, the want of a necessary diet, their inability or unwillingness to abstain from restricted diet, their usual alcoholic tendency, the results obtained by lavage in the medical

clinic of the Jefferson Medical College Hospital are quite creditable.

Where the physician has the absolute control of his patient, as in bedside, hospital, or private practice, the result in treatment is much better. In none of the cases have harmful results followed, and where the caution is employed that has been mentioned in detail above, no evil effects will follow. In many cases in private practice the patient soon learns the manœuvre himself, and many physicians can cite examples of patients that regularly carry out this procedure without their attending medical adviser.

The therapeutic uses of the tube are many. In cases of poisoning, either alkaloidal or mineral, lavage should be used. In acute or chronic gastric catarrh with subsequent gastrectasis, it will be found by far the best remedy. In peptic ulcer, cardialgia, all forms of dyspepsia, reflex vomiting, no remedy has shown itself so generally useful. In carcinoma of the pylorus with stenosis and consequent dilatation and gastric catarrh, lavage, for a time at least, produces wonderful results. It has been advised recently as a remedy for chronic constipation due to paresis of the muscular coat of the bowel.

The contraindications are few, and it certainly is a remedy that every physician should have at his command, so that its use should give the patient the benefit which so often follows the employment of systematic lavage.

THE TREATMENT OF FRACTURES OF THE SHAFT OF THE FEMUR.

READ BEFORE THE SECTION OF SURGERY, AMERICAN MEDICAL ASSOCIATION, SAN FRANCISCO, CAL., JUNE, 1894.

BY LLEWELLYN ELIOT, A.M., M.D.,
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OUR chairman having paid the high compliment of assigning the subject of "The Treatment of Fractures of the Shaft of the Femur" to me, I shall, within the time allotted, place my views before the Section in the briefest possible manner.

The causes, the symptoms, and the diagnosis of fracture of the femur being entirely foreign to my subject, no mention will be made of them. We shall likewise exclude from consideration all fractures of the femur not located between the lesser trochanter and the condyles. Although every variety of fracture is found in this bone, the transverse and the oblique are the most frequent; these fractures may be either simple, comminuted, or compound.

Having made our diagnosis, we must have the patient's bed arranged so as to allow permanent and continuous traction to be employed. This traction, in the case of adults, may be effected, after the proper adjustment of the fractured ends of the bone, through the employment of the apparatus of either Liston, Desault, MacIntyre, Thomas, the Smith anterior, the Hodgen suspension, Buck, Boyer, Neill, or the double inclined plane of Esmarch, Gross, or others, the foot of the bed being raised so as to insure counter-extension. In infants either Hamilton's apparatus or vertical extension will give satisfactory results. To enter into a description of the various devices employed in the treatment of fractures of the femur would be of no interest to you, since all are familiar with them. The employment of permanent dressings—plaster of Paris, silicate of sodium, and others of a like nature—I do not think justifiable before the third week, when union is sufficiently strong to warrant their application, although many surgeons employ them from the start, and I would hesitate quite a while before I would use any of them previous to the establishment of union of the fragments. Objections will readily present themselves. Should a compound fracture present itself, I should be still slower in applying a permanent dressing.

The questions of suturing or pegging fragments in cases of compound fracture and of amputation may be settled in a few words. Where the fragments can be properly and accurately adjusted, and the blood-supply to the limb remains good, the fragments should be sutured or pegged, and the wound treated by the open method. When, however, the soft parts are lacerated and the vessels supplying the limb are divided, amputation should be resorted to early, before the patient's strength is wasted through secondary hemorrhage, gangrene, or other causes.

The treatment of fractures of the shaft of the femur resolves itself into the following: A suitable bed, accurate apposition of the fragments, the proper application of the splint and extension, good, nutritious food, and, unless the case is one requiring amputation, the results will generally be satisfactory, although shortening occurs in very many cases.

There is one question in relation to extension in fractures of the femur to which I would like to call attention; it is the matter of the priority of the application of adhesive plaster in extension. The generally-accepted opinion is that Dr. J. K. Swift is entitled to the credit of first using it, and Professor S. D. Gross, in

his "The Anatomy, Physiology, and Diseases of the Bones and Joints," page 50, published in 1830, puts forth his claim as follows: "In complicated fractures of the leg, it not infrequently happens that the soft parts about the ankle are so much contused, or otherwise injured, as to render it impossible to employ the usual extending bands. When this is found to be the case, the difficulty may usually be remedied by applying along each side of the leg, as high up as the seat of fracture will admit, a piece of strong muslin, about two feet and a half in length, two inches and a half in width, and spread at one of its extremities with adhesive plaster. The part which is applied upon the limb should be confined by three or four circular strips, so as to keep it firmly in its place and equalize the extending power. The free extremities of the extending bands should then be tied under the sole of the foot, and be secured to the block or bar which connects the lower ends of the splints. This mode of making extension, for which we are indebted to the ingenuity of my friend and preceptor, Dr. Swift, of this place, will, I am fully persuaded, be found highly useful in practice, and satisfactorily obviate the inconveniences to which I have just alluded."

Now, for more than twenty years I have endeavored to adduce evidence so as to accord the credit to Dr. Alexander McWilliams, of this city, and to that end have searched books and journals and papers. At the time when success seemed to crown this research, I find published evidence which dissipates all contention. The following appears in "Medical and Chirurgical Observations as an Appendix to a former Publication, by Benjamin Gooch, Surgeon, London," page 108, published about 1780: "To answer the same purpose, I have confined one end of a strong strip of sticking-plaster, of a suitable length and breadth, under a circular piece of the same about the middle of the sole of the foot, carrying it over the heel up the leg and confining the other end above the calf with another circular plaster, first gently and gradually bringing down the Muscul. Gastrocnem. as far as they will readily yield; giving the limb, at the same time, the position described in my Treatise on wounds. On the like occasion, I have also fixt one strap by the circular about the foot, and another by that above the calf of the leg, passing the one through a slit in the other, and using them as the uniting bandages; but then two more circulars are requisite to confine the other ends of the longitudinal straps securely." That the studies and this publication of Gooch did not receive attention from surgeons and other writers is evident from the fact of so many others afterwards working in the same line of thought, each unconscious of the work of the other. Among these workers was Dr. Alexander McWilliams, who treated, in 1827, a case of fracture of the femur by this method of extension at the Washington Almshouse. Failing to establish the claim of Dr. McWilliams to priority in the application of the idea of extension by means of strips of adhesive plaster, I will present such evidence as I possess, all derived from letters in my possession, to establish his claim to the credit of being the first surgeon in the United States to put into practice this idea. At that time (1827), according to the letter of Dr. Hall, the recognized surgeons of this country knew nothing of this method, and, indeed, as late as 1836, M. Larray mentions the method only to condemn it, as will be seen in the extract taken from the minutes of the Société Royale de Médecine of June 21, 1836.

In a letter, under date of January 9, 1875, Dr. Noble Young, of this city, writes, "In regard to the matter of the invention and application of adhesive strips for the purposes of extension in cases of fracture of the femur, by the late Dr. Alexander McWilliams, I have to state it is within the recollection of his family that it occurred prior to 1829; they know this by circumstances impressing it indelibly upon their memory. He sent a model explaining the application to Paris by Dr. Hall, brother of the late David A. Hall, and received a letter from the French Academy of Medicine congratulating him and thanking him for his valuable contribution. This letter has been mislaid only within the last few years. I may add that Dr. Jos. Borrows remembers its application at the almshouse in this city before 1828, when he was a student there."

Dr. James C. Hall, under date of February 15, 1878, writes, "My evidence as to the application of adhesive strips as a means of extension in the treatment of fractures by Dr. McWilliams must be circumstantial. I came to Washington in October, 1828. After graduating (1827), I was for one year a resident physician and surgeon in the Philadelphia Almshouse, now Blockley Hospital. The visiting surgeons and clinical lecturers were Professors Gibson, Horner, Rhea, Barton, and Harlan. Very many and all kinds of fractures were treated in the House, and I am positive that I never heard McWilliams's mode either mentioned or practised during my term of service. . . . My recollection is almost positive

that my first knowledge of Dr. McWilliams's use of the strips as a means of extension was derived from an article which the doctor published in a newspaper here. I thought it was the *National Intelligencer*, but Dr. Toner has searched for it and not found it there. This has not weakened my conviction that Dr. McWilliams published in some paper an account of his method of treating fractures of the femur. . . ."

Dr. Joseph Borrows, under date of June 6, 1878, writes, "Excuse my apparent neglect in not answering until now your letter in reference to the use of adhesive plaster for the purpose of applying extension in fractures of the lower extremities.

"In the year 1827 I was one of the resident students in the Washington Asylum or Almshouse, of which Dr. Alexander McWilliams was the attending physician. Dr. McWilliams at that time exhibited and used adhesive plaster for the purpose above mentioned."

In the *Archives Générales de Médecine*, Book ii. p. 247, 1836, I find (Société Royale de Médecine, Paris, séance du 21 Juin), "Rapport de M. Larray sur un appareil à extension continue pour les fractures des extrémités inférieures; par le Docteur Williams de Washington.—Cet appareil est une copie à-peu-près entière de l'appareil de Boyer. La seule différence consiste dans une attelle interne qui se fixe à la traverse sur laquelle la vis s'appuie. M. Larray blâme la méthode en général et tous les appareils qui s'y rattachent. Il n'adopte pas davantage le double plan incliné et préfère toujours son appareil inamovible. . . ."

Dr. B. Trautman, of Philadelphia, Pa., at my request, called upon Professor Gross, asking him for some definite date of Dr. Swift's application of this method of extension, and he writes, under date of June 27, 1879, "I called on Dr. Gross several times, but he always happened to be out of town; but last week I called again and saw him. He told me that Dr. Swift employed adhesive plaster in complicated fractures first in 1829."

The record of the almshouse shows, in the morning report of July 18, 1827: "Admitted P. Brady, forty years; report of July 21, 1827, fracture of femur." This is evidently one of the cases to which Dr. Joseph Borrows refers in his letter.

In no work on surgery of this date (1827 to 1836) have I found any reference to this method of extension, so it is very evident that there had been no published development of the idea until Dr. McWilliams sent his model, a doll-baby with the apparatus applied, to Paris. Dr. J. F. May was present at the presentation and verbally testified to the favorable reception accorded it.

To my satisfaction I have established the following facts:

1. Dr. Gooch was the first to employ adhesive plaster as a means of extension in fractures.

2. The idea was allowed to pass into oblivion.

3. Dr. Alexander McWilliams, of Washingington City, was entirely ignorant of the work of Dr. Gooch.

4. Dr. Alexander McWilliams developed and put in practice the idea in 1827.

5. The claim for Dr. Swift is too vague to carry weight with it.

6. The published report of the Société Royale de Médecine is the first published account of the method after its revival by Dr. McWilliams.

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THE TREATMENT OF PLEURITIC EFFUSIONS.

READ BEFORE A MEETING OF THE PHILADELPHIA CHAPTER OF THE ALUMNI ASSOCIATION OF THE JEFFERSON MEDICAL COLLEGE, HELD MARCH 13, 1894.

BY THOMAS G. ASHTON, M.D.,
Chief of the Out-Patient Medical Department in the Jefferson Medical College Hospital and Demonstrator of Clinical Medicine in the Jefferson Medical College.

IT is my purpose in this paper to mention a few especial plans of treatment of pleuritic effusions rather than to give a detailed and systematic description of the various methods of treatment of the condition.

In taking up this subject one is at the outset confronted by the fact that the tendency of the day is to assign to one particular organism a pre-eminent position in the etiology of diseases of the pleura. That most cases of pleurisy are of tubercular origin is a theory the truth of which is substantiated by new facts almost every day, but we are in danger of losing sight of the fact that agencies other than the tubercle-bacillus hold important causal relations to the disease under consideration.

This tendency to give to the tubercle-bacillus chief place in the etiology of pleurisy has naturally resulted in limiting the therapeutic management of the disease, and as we have but one cause, so we are inclined to restrict ourselves to but one treatment.

Churton (*International Clinics*, Philadelphia, 1891, vol. iii.) remarks, "There is no apparent reason why there should not be as many different causes for disorder of the cell-plates, and consequent effusion into the pleural sac, as there are

admitted to be for effusion into the sac of the hip- or the knee-joint, for example." And this writer further adds, "Who, knowing how perfectly recoverable are rheumatic affections of the joints, would propose incision, or even repeated aspirations, except for mechanical reasons?"

It is, therefore, of importance, both as regards prognosis and treatment, that we assign to other agencies than the tubercle-bacillus a position in the etiology of pleurisy. That we should have fallen into the error of giving to tuberculosis a too important standing in this condition has in large part resulted from the uncertainty of the results attending examinations of the pleuritic fluid for the bacillus. From the fact that even in cases of undoubted tubercular origin the presence of the bacillus cannot always be discovered in the effused fluid, we have come to reason, and justly so in the majority of instances, that the tubercle-bacillus acts as a factor in the production of pleurisy, even though its presence cannot be detected in the effusion. That this is invariably the case, however, and that there are not other and important causes of pleurisy, must be denied.

Of these other causes, probably the poison of rheumatism is the most important. Whatever the nature of this poison may be, we know that its effects are chiefly manifested upon the serous membranes, and it is admitted that the structures of the endocardium and of the pericardium are particularly prone to suffer. If these tissues are especially susceptible to the effects of the rheumatic poison, why should not the analogous structure of the pleura be equally exposed? Nor is it a point against this view to cite the frequency with which pleurisy occurs without coincident involvement of the joints, since it is now generally admitted that we may have endocarditis resulting from the effects of rheumatism without at the same time the joints manifesting signs of the affection.

In accordance with this line of thought, Fiedler ("Jahresber. d. Gesellsch. f. Natur u. Heilkunde zu Dresden," 1891), while holding that tuberculosis plays the principal *rôle* in the causation of pleuritis, calls attention to what he states to be another and not infrequent variety of pleurisy,—viz., the rheumatic form; and he holds to the view that rheumatic pleurisy is etiologically upon the same basis as rheumatic endo- and pericarditis, which so often accompany articular rheumatism; and that, due to the same cause, it can occur spontaneously without involvement of the joints.

So, also, Strümpell, in the eighth edition of his "Lehrbuch," states that as pleuritis occurs not infrequently as secondary to acute articular rheumatism, so it would appear that in other cases the rheumatic infection tends to become localized in the pleura alone, constituting what might be called a primary "rheumatic pleurisy." This authority further states, however, that it is possible to make this explanation with full certainty in only a few cases, and that most frequently it is justified only when later polyarticular swellings, endocarditis, or other evidences of a rheumatic infection develop. In other cases of apparently primary acute pleurisy, occurring perhaps after exposure, and running a rapid and favorable course, this interpretation of the etiology is to be considered as probable. Not infrequently, however, he continues, the further course of the case clears up the pathogenesis of the disease in an entirely different way.

If, therefore, the statement be correct that rheumatism is an important and not infrequent cause of pleurisy, do we do justice to our patients if we neglect the use of the specific for diseases of rheumatic origin? If the pleurisy be of rheumatic origin, by allowing the poison to remain unopposed in the system for one moment longer than is necessary, we undoubtedly subject our patient to unnecessary risk from that most dangerous of all the complications of rheumatism,—endocarditis.

At the outset, however, we are met with the difficulty of determining which of our cases of pleurisy are rheumatic in origin and which tubercular, and this difficulty will continue until we can with more certainty determine the presence of bacilli or their products in pleuritic fluids. It is possible in these cases, however, to make a therapeutic test as to the nature of the affection, as the administration of the salicylates in cases of rheumatic pleurisy is followed by a rapid decline in the morbid process.

As to the advantage derived from the use of the salicylates in pleurisy, we possess abundant evidence from the highest authorities in the literature upon the subject. Thus, Köster (*Therapeutische Monatshefte*, Berlin, 1892, vi.) reports his experience in a series of thirty-two cases of pleural effusion. In this series aspiration, on account of threatening symptoms or non-absorption, became necessary in but three, and this notwithstanding the fact that they were all cases in which the effusion was of more than ordinary amount. While admitting that the action of the salicylates is not constant, this authority states that the drug should be tried in all cases of primary exudative pleurisy.

He also recommends its use in those cases in which a friction sound is the only evidence of the existence of pleural inflammation, claiming that it quickly lessens pain and results in a speedy decline of the temperature. Nor does he restrict the usefulness of the drug to the primary form of the disease, so called, but, on the contrary, holds that it is of value even in cases of secondary origin. This would attribute to the salicylates a value other than that which they possess as an antidote to the poison of rheumatism. A similar view is also entertained by Tetz (*Therapeutische Monatshefte*, July, 1892), who claims that secondary pleurisies are susceptible of successful treatment by the salicylates.

Jaccoud, in the last edition of his "Medical Pathology" (and *Gazette des Hôpitaux*, 1889, 1890, 1891), emphatically states that in some cases a rapid cure follows the early use of the salicylates, and that the average duration of the disease is lessened. He further claims that he has often avoided the necessity for the operation for empyema by the use of sodium salicylate. The same authority, quoting Chassagne, says that the latter prefers to either salicylate of sodium or salicylic acid the use of salol, as being better tolerated by the stomach, and at the same time accomplishing with equal facility the resorption of the effused fluid.

Again, Lamercy (*L'Union Médicale*, 1891) says that exudations of several weeks' standing will yield to the salicylate treatment, and in this connection the same writer makes the following statement, than which nothing could be more positive or of greater significance: "If this treatment be instituted early, I think Estlander's operation will be, in the future, a surgical rarity."

In the eighth edition of his "Lehrbuch," Strümpell assigns first place to sodium salicylate as a diuretic in the treatment of pleuritis, because, as he says, there has been ascribed to it a specific action in pleurisy; and, further, states that it is of especial value in cases of rheumatic origin, and that many good observers affirm that a primary pleuritic exudate under treatment with sodium salicylate often undergoes rapid resorption and the case otherwise pursues a favorable course. Strümpell also claims that, in addition to its specific action, sodium salicylate also possesses an immediate diuretic effect.

There is, therefore, much difference of opinion expressed as to the manner in which the favorable action of the salicylates is exerted upon pleuritic effusions. That the effusion undergoes resorption partly as the result of the diuretic action of the drug can admit of no doubt; but in cases of rheumatic pleuritis it would appear not unreasonable to attribute the action of the salicylates to their well-known antidotal properties in relation to the rheumatic poison. That this limits the drug's usefulness, however, many deny; and these claim for it a value in the treatment of cases other than those of rheumatic origin, and even in those cases that are secondary to other conditions. Thus, Dock (THERAPEUTIC GAZETTE, 1893, vol. ix. 78–82) holds the view that the drug's action is specific independently of the rheumatic origin of the disease, and in this connection considers it a significant fact that, in a case of pleuritic effusion placed upon the salicylates, he was enabled to detect the presence of salicylic acid in the effusion.

The dose of the salicylates administered in the treatment of the disease under consideration is usually a large one. Aufrecht (*Berliner Klinische Wochenschrift*, 1886, No. 10) recommends salicylic acid in gramme doses five or six times daily, the patient being kept in the recumbent posture. In two or three days the quantity is reduced to 3 or 4 grammes daily, and so continued for eight or ten days. Köster gives the salicylate of sodium in doses of 1.5 grammes three or four times daily, while others recommend the substitution of salol as being better tolerated by the stomach.

In no article, though only partially embodying the treatment of pleuritic effusion, should mention of the so-called dry method of treatment be omitted. As is well known, the efficacy of this treatment depends upon so depleting the blood-serum that, through its tendency to regain its normal consistency, it will absorb the necessary fluid from the tissues. This depletion is brought about by giving fluids sparingly by the mouth at the same time that we take from the blood its watery constituents by the systematic use of concentrated saline solutions, the latter a method of treating dropsical effusions for which we are indebted to Matthew Hay. By some this treatment is supplemented by the administration of diaphoretics and diuretics. If the blood-serum be depleted, and it possess the power of regaining its normal consistency by absorbing fluid from the tissues, from no source can it obtain such an abundant supply as from the effusion which has taken place into the pleural sac. Thus, under this treatment, very large effusions frequently undergo rapid absorption.

When, in the course of pleural effusions, evidences arise of embarrassment to respiration or to circulation, and, even in the absence of

these symptoms, when the effusion is massive, no matter what may have been the cause of the trouble, we must remove the fluid by mechanical means. When the contents of the pleural sac are serous, this is now usually accomplished by aspiration.

In causing the resorption of pleural effusions by the use of drugs, the question arises whether or not there is a possibility of doing harm to the individual by the absorption and distribution to the tissues of this fluid, which, during its retention in the pleural sac, may have undergone some change that might render it noxious. This is particularly apt to be the case in pleurisies of tuberculous origin, and the possibility of exciting an acute miliary tuberculosis should not be overlooked. Indeed, some authorities hint at the advisability in every instance of pleuritic effusion of withdrawing the fluid by mechanical means, rather than run the risk of such a possibility. Thus, Rosenbach (*Real-Encyclopädie der gesammten Heilkunde*, 1885, iii. 498) says that, in the operation of aspiration, that we withdraw from the use of the economy a certain amount of albuminous material is of no significance, because we do not know what retrogressive changes this material may have undergone, and because there remains the possibility that by the taking up again into the circulation of this substance by quick absorption a latent pulmonary tuberculous deposit may receive renewed stimulation and pursue a rapid course. Undoubtedly, from this point of view, the advisability of the mechanical withdrawal of pleural effusions of tuberculous origin deserves serious consideration.

The treatment of purulent effusion into the pleural cavity is in reality a subject for the consideration of the surgeon, and I will therefore refer to it but briefly.

Cases of empyemata occurring in the adult as a primary condition, in which the effusion takes place rapidly and the consistency of the pus is thin, sometimes result in spontaneous cure after two or more simple aspirations. This is likewise true of the empyemata of childhood, at which period of life effusions are frequently purulent from the onset. Carmichael (*Edinburgh Hospital Reports*, 1893, i. 270–275) reports a large number of pleural effusions occurring in childhood, and arrives at the following conclusions in regard to the removal of the fluid from the pleural sac in this class of patients:

1. That aspiration alone is successful in many cases of limited purulent effusion.

2. That simple drainage with antiseptic precautions is all that is required in the great majority of cases.

3. That resection of the ribs is rarely needed in children.

4. That irrigation, except in septic cases, is unnecessary, and may be hurtful if not very carefully carried out.

With the possible exception of those cases of purulent effusion occurring under the above conditions, it is but trifling with the life of our patient to trust that a purulent effusion will undergo resorption. Various methods, however, have been devised to be used in connection with partial aspiration to favor the absorption of the remaining fluid, notably that advocated by Senator, who advises that the quantity of pus withdrawn from the pleural sac be replaced by an equal quantity of some antiseptic solution, which, by thinning the consistency of the pus not withdrawn, will hasten its absorption. It is manifestly irrational, however, to suppose that a pyogenic membrane, such as the pleural membrane becomes in empyema, should be capable of taking up through its lymphatics the fluid remaining within the sac, no matter how thin in consistency that fluid may be rendered.

Thus we come to the ultimate conclusion that a purulent pleural effusion is in reality an abscess, and demands the treatment of an abscess in any other locality,—viz., evacuation and free drainage. "Ubi pus, evacua."

In closing, I would draw the following conclusions:

1. That the tubercle-bacillus is the cause of the majority of cases of pleurisy.

2. That a certain number of cases of pleurisy are due to rheumatism.

3. That in the treatment of the rheumatic cases we should employ the salicylates, as having specific action in such cases.

4. That the salicylates are of value in cases of other than rheumatic origin, and their use, therefore, should not be restricted to such cases.

5. That, as a rule, purulent effusions demand evacuation and free drainage.

THYROID FEEDING IN PSORIASIS.

By J. Abbott Cantrell, M.D.,

Professor of Diseases of the Skin in the Philadelphia Polyclinic and College for Graduates in Medicine; Dermatologist to the Philadelphia Hospital and to the St. Agnes Hospital, Philadelphia.

SINCE the reports of Bramwell (*British Medical Journal*, 1893, No. 11,933) and Davies (*British Journal of Dermatology*, 1893, vol. v., No. 257) upon the use of thyroid ex-

tract in the treatment of psoriasis, numerous clinicians have from time to time recorded their experiences with this drug, and while the notes have been either positive or negative, it will be found that most of the records have been negative; and while these reports, as a rule, do not state whether the cases have been under treatment or not, I find that the greater number of observers are of the opinion that the drug does not by any means justify its further continuance, especially in psoriasis.

At the recent meeting of the American Dermatological Association, held at Washington in the latter part of May, 1894, Dr. George Thomas Jackson, of New York, reported his experiences with its use in a number of diseases of the skin, and in every instance the drug proved of no value, and, furthermore, it had a deleterious effect in some of the cases.

Recently I find the records of a case being treated by this agent by W. Dale James (*British Journal of Dermatology* for June, 1894), in which he found, after a time, that glycosuria had been produced, and probably with this drug.

If this remedy, which has been supposed to have a beneficial effect in psoriasis or other diseases of the skin of a desquamative nature, be carried to other fields, it might or might not prove beneficial.

I myself have been led, even after seeing so much adverse criticism, to try the drug in cases of psoriasis that appeared in my clinic at the Philadelphia Polyclinic, and I hope that the following cases will prove interesting and instructive to my readers. The experience thus gained in my clinic gives credence somewhat to both sides of this question, and for this reason I take this opportunity to record my results.

Case I.—*March 29, 1894.*—A young man, twenty-three years of age, being of slight build, five feet five inches in height, and weighing one hundred and twenty-five pounds. He stated that the present eruption began some three years before his visit, and that at the beginning the lesions were mostly confined to the legs and remained in that portion from eighteen months to two years. He had been treated by some obscure means without effect for over one year.

The eruption as witnessed on this date had remained in the same condition for several months. It was confined mostly to the trunk, although other lesions were scattered over the remainder of the body.

Upon the anterior surface of the trunk the lesions were situated on the right side of the chest and upon both sides of the abdomen. Those on the right side of the chest, being distinctly above the nipple line, were four or five in number, and ranged in size from a nickel five-cent piece to a half-dollar.

Upon the left side of the abdomen I found one lesion, about four inches below the nipple and towards the ensiform cartilage, which was about the size of a silver dollar, also others near the umbilicus, which ranged in size from that of a silver quarter-dollar to a silver dollar.

Two lesions were found upon the right side of this region and directly below the nipple (seven inches below), and were the size of a silver dollar.

Upon the posterior surface of the trunk there were numerous lesions scattered at irregular intervals throughout the region, and ranging in size from a pin's head to that of a silver half-dollar.

Lesions of variable size were seen occupying portions of both the arms and legs.

The lesions were circinate, with the distinctive abrupt edge often witnessed in this affection. I found the peculiar mother-of-pearl and imbricated scale so characteristic of psoriasis.

Itching was present at irregular intervals to an intolerable degree.

At a previous visit he had been ordered 5 drops of the liquori potassii arsenitis, which was to be taken three times a day.

April 6.—Was ordered in addition to the above,—

℞ Thymol, gr. x;
Ungt. zinci oxidi, ℥i;

which was to be applied thrice daily.

April 17.—The disease seems to be but slightly raised upon the surrounding skin; the lesions are, as a rule, small, although closely aggregated. The lower lateral sides of the chest and abdomen appear to be one mass of disease, and encroaching upon the anterior portion of the trunk, runs together and appears as if it was one mass. As there was not any change, I advised the use of cod-liver oil in 2-drachm doses three times a day.

April 27.—Eruption no better; was ordered olei copaibæ, 5 drops to be given three times a day.

May 11.—Condition about the same. Another change was made on this date, and he was given the desiccated thyroids of Parke, Davis & Co.'s manufacture. I advised beginning with 5-grain doses three times a day.

May 18.—Some slight change in the lesions; the scales are not so abundant, and the lesions begin to have the soft, natural, pliable feel of the normal skin.

May 25.—Thyroid was increased to 7 grains three times daily.

June 1.—Lesions are beginning to fade in color; the edges do not seem so marked; thyroid increased to 10 grains thrice daily.

June 12.—Felt perfectly well, although for some reason (unrecorded) the thyroid was decreased to the minimum dose.

June 28.—Eruption was almost the natural color of the skin. I advised increasing again to 7 grains thrice daily.

July 12.—All the lesions have entirely disappeared (two months after beginning treatment with thyroid).

CASE II.—*May 12.*—Male, aged twenty-eight, brass-worker, presented himself at the clinic for the first time, complaining of an eruption on the body. Upon examination, the lesions, which showed the characteristic appearances of psoriasis, were found at different portions of the whole body,—namely, the trunk, arms, and legs, a few being noticed upon the face. He was ordered the desiccated thyroids in doses of 5 grains thrice daily.

May 19.—A slight change was noticed.

May 26.—The lesions were beginning to show the effect as witnessed in the other case,—that is, the scales are beginning to fall off.

June 9.—The lesions very much improved in their outline; the edges are not so prominent; the scales have almost disappeared.

June 16.—The old lesions, which were almost devoid of scales, had faded in color considerably, but some new lesions were noticeable on the left forearm and right arm; thyroid increased to 10 grains thrice daily.

The patient did not return after this visit.

CASE III.—*June 16.*—Female, aged eighteen, general housework; the lesions, as a rule, were small; in places they formed patches; they were all covered with fine scales. She stated that she had never been treated, though the eruption had at times disappeared spontaneously. She was ordered thyroids in doses of 5 grains thrice daily.

June 20.—No change whatsoever; thyroid increased to 10 grains thrice daily.

June 23.—The lesions seem to show the change as witnessed in the first case. She did not return after this date.

CASE IV.—*May 24.*—Male, aged forty, policeman, five feet nine inches in height, and weighing two hundred and thirty pounds; he had been coming to the clinic, at irregular intervals, for a period of over one year, and during that time had been under several different remedies.

The lesions as witnessed on this date occupied the forehead, especially around the borders of the hair. He had one lesion, the size of the palm of the hand, situated upon the median line of the chest; other and more numerous lesions were scattered over the back, arms, and legs; they were all decidedly itchy. He was ordered the thyroids in doses of 5 grains thrice daily.

June 2.—Thyroid increased to 10 grains.

June 7.—The man, being very much frightened, came to the clinic in a very nervous condition. He stated that he had pains all over his body, that his hands were tremulous, and that his knees felt as if he had no power to stand erect. He also stated that he had no appetite, and was almost unable to keep awake, either in the day or night, while on duty. Decreased again to 5 grains.

June 21.—Deeming that the remedy had been given sufficient trial in this case, I advised a change to some other.

After a careful study of the above cases and the strict discipline followed in the treatment of all, I feel that more benefit can be obtained by the feeding of psoriasis patients with the extract of thyroid than has been generally accredited to it; and while it is possible that some or many of the cases will not respond to its effect, I believe that all those having psoriasis, if they can take the proper dose to affect the disease, will undoubtedly be benefited by it.

Thus, it will be seen that one of my cases (Case I.), a slimly-built, delicately-formed, nervous young man, took and could take a larger dose than a large robust man (Case IV.); and while the dosage used in the first case gave the desired cure, the second case was not at all benefited by it, and, in fact, new lesions formed while he was taking it, and at the same time disagreeable effects were noticed, thus showing that the latter case did not get the proper dose to affect the disease.

We cannot expect that a remedy which has been extolled in this or that affection will give the desired result in all cases using it.

STERILIZATION OF CATGUT.

RÉPIN (*Revue de Thérapeutique Médico-Chirurgical*, June 15, 1894) has found a method of sterilizing catgut by means of heat. He uses the vapor of alcohol heated to 120° C., verifying the sterilization by placing bouillon in the same tubes with the gut; if the bouillon remains clear, the gut is fit for use; but if it becomes turbid, the ligatures should be rejected, as the tubes are infected.

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Leading Articles.

THE CUMULATIVE ACTION OF DIGITALIS.

A SUBJECT which possesses a great amount of interest to the practitioner of medicine is the question as to whether the most important of the group of cardiac stimulants, digitalis, possesses in any sense what is known as a cumulative action. It is a question which has been discussed *pro* and *con* in the columns of the THERAPEUTIC GAZETTE as long ago as 1888, and in other journals and text-books, until one would have supposed that by this time distinct and definite ideas as to whether this result ever occurs would have been reached. Our attention has been called to this subject once more by the article of Dr. Beaumont Small in "Buck's Reference Handbook of the Medical Sciences" (the supplementary volume), in his article upon "Digitalis." The statements which he makes are the more worthy of notice, in view of the fact that his contributions to this volume are certainly among the most valuable which the work contains. Not only does he bring to his contributions a wide knowledge of the literature, but he appears to have been very careful to occupy a judicial position in all his utterances in this important volume of medical learning. It is because we are forced to differ with Dr. Small that we write this editorial, being well aware of the large number of statements which he can bring forward, made by competent authorities, that the cumulative action of this drug is never seen. We take our position in this positive manner not only because we believe that such an effect may be produced theoretically, but because we have actually seen it occur in a sufficient number of cases to make us very certain of the correctness of our observation. It goes without saying that much depends upon what we mean by the term "cumulative action." We may indicate that the organ resists the action of a drug or remains free from it for a considerable period of time, and then suddenly gives way to its peculiar influence; or, on the other hand, that a large quantity of the drug is retained in the body, either in the tissues or in the organs which receive it, without entering the active circulation, and that it is only when the tissues become so loaded with the drug that they are practically saturated with it that it is poured into the circulation and immediately exercises an almost toxic influence upon the organs which are susceptible to its power. Again, cumulative action may to a certain extent depend upon frequent dosage of a drug which is very slowly eliminated, and so accumulates in the system. It is worthy of notice in passing that digitalis is probably such a drug, although the important point should not be forgotten that it is so completely destroyed in the organism by oxidation or otherwise that chemists have never been able to satisfactorily obtain either it or any derivative of it from the urine or other secretions of the body. In Dr. Small's article, which we have quoted, he states, "A cumulative action in the sense of an accumulation of the drug in the system followed by an outburst of increased action is no longer feared; no such condition occurs. Toxic symptoms arise only from an overdose or from its prolonged administration, and the condition of poisoning is preceded by its regular train of symptoms." These sentences are difficult of analysis, for he states that toxic symptoms only arise from its prolonged administration. Of course toxic symptoms arise from the prolonged administration of all drugs if the dose is a large one, as chronic poi-

soning is finally induced. We think that this is one of the points in which a mistake is made. The question is not as to whether digitalis produces toxic symptoms after prolonged administration; it is whether the drug is capable of being administered for twenty-four or forty-eight hours without effect and then able suddenly to develop its full influence. We believe very distinctly that, under certain conditions, this is an action of digitalis, as we have already said. In the first place, aside from the slowness of its elimination, we all know that the drug has an action upon the heart which lasts for a very long period of time. Thus, we have under our care at the present moment a case of rheumatism to which a physician, who had the case before we were called in, was administering full doses of digitalis. It is now a week since this medicine was stopped, yet, notwithstanding this, the effects of the digitalis upon the heart (which are so characteristic) progressively became more and more marked for three days after the administration of the drug was discontinued, and on this—the seventh—day the pulse-rate is only 60, and the heart's action is irregular and still possesses the peculiarities of digitalis. It is impossible to believe that any physician would have administered the drug and ordered its continuance in the face of such symptoms of cardiac distress as the digitalis produced in this instance. In other words, in this, as in many other cases where the patient has been under observation during the entire administration of the drug, perfectly good evidence is obtainable to show that the full effects of the drug were suddenly developed, and that even after it was stopped its effects increased for a considerable period of time. There are two conditions in which, without any doubt, this drug is exceedingly apt to exert this cumulative action. One is seen in cases of ascites, even in those instances where the drug has been given in comparatively moderate dose, as, for example, 5 drops of the tincture three times a day, the other in cases of high fever. In the first of these cases there can be no doubt that removing the fluid from the abdominal cavity is followed by a heightened action of digitalis, when that drug has been administered for a considerable period of time prior to the paracentesis, and indeed this is also true of those cases of general anasarca where the dropsy is relieved by purgation. Those who have given digitalis to any extent in cases of fever must have seen the fact illustrated, which was first pointed out experimentally by Lauder Brunton, that digitalis fails to exert any influence, or at least its ordinary influence, upon the heart if the body temperature is above 103° F. If they have watched their cases carefully, and have continued the administration of digitalis, they will have noticed when the fever declines, either in the natural course of the disease or because of constant cold spongings, that the digitalis at once exercises its well-known influence, and speedily produces far greater effects than the moderate doses which have been given during the few hours preceding the fall could possibly have produced had their effects been distributed over hours. This is certainly an instance of the cumulative action of digitalis. We believe, on the other hand, that the development of this cumulative influence is not commonly met with in the average case of heart-disease to which the drug is administered, and the symptoms are not to be confused with the characteristic abortive beatings of the heart under the action of excessive doses of this drug; for sometimes the heart is found beating furiously, yet producing almost no radial pulse; at other times it beats with remarkable slowness—45 to 50 per minute—and then quite rapidly, or the beat is intermittent both in strength and in frequency. In still other cases when the doses of the drug have been excessive, either because of their size or cumulative action, a condition of what might be called asystole is produced, in which auscultation of the præcordium can scarcely reveal the first sound of the heart.

So far as we know, all preparations of digitalis are equally liable to produce the condition of which we write. Personally we have always found that the tincture of digitalis fulfilled all the indications, both from a pharmaceutical and therapeutic stand-point, and so prefer it to any other form of the drug.

THE TREATMENT OF CANCER.

COLEY, in his collection of cases of malignant growth cured by an attack of erysipelas, and Spronck, in his paper detailing the results of inoculation of the sterilized toxine of erysipelas in nineteen inoperable cases of cancer, have called the attention of the profession to a method of treatment in the line of the therapeutics of the future, and one which, though uncertain in its results and dangerous in its application, holds out a possibility of cure when the operation stage has been passed and the outlook is otherwise absolutely hopeless. The real percentage of cure is, of course, indicated not at all by collections of reported cases, since, until very recent times at least, continued or even more rapid growth of a

neoplasm after a florid erysipelas would have been considered as the natural course of events and hence not deserving of publication. Certainly every surgeon of more than fifteen years' standing will recall not one, but perhaps many, cases of cancer operation in which the growth was apparently quite removed, in which the wound and surrounding parts were attacked by erysipelas or cellulitis, and in which there was recurrence *in loco*. It is difficult to imagine an inoculation made under circumstances better calculated to demonstrate the curative power of erysipelas, and yet such accidental inoculations usually failed. Coley has shown, however, that in a small number of carefully observed, perfectly authentic cases, erysipelas inoculation has succeeded. His statement on this point is not open to doubt, and the only caution to be observed is lest the surgeon who studies collections of cases should be led into the error of hoping too much and, far worse, of promising too much.

Agnew, whose experience in the treatment of malignant growths was enormous, always held that free suppuration following cancer operations lessened the probability of recurrence, though he was one of the first in this country to accept and to teach the principle and practice of clean surgery. Wyeth states definitely that infection by pus microbes will cure sarcoma, and quotes a case in point. From his patient he removed a portion of a large sarcoma, and into the remainder injected arsenous acid. This was followed by violent inflammatory reaction and free suppuration. The patient was cured, and has remained well for ten years. Wyeth attributes the cure not in the least to the caustic action of the arsenic, since only a very small portion of the remaining growth was reached, but rather to the streptococci infection. It seems clear that reported cures of cancers by the various injections, such as pyoktanin, for instance, can be explained on the same ground; though, for the most part, these cases have been so carelessly observed, or at least so imperfectly reported, that they cannot be accepted as instances of veritable cancer cure.

A second case of sarcoma observed by Wyeth was subject to amputation of the leg, and later of the hip; a second recurrence in the hip incision was cured by an accidental attack of erysipelas, and the patient is still living five years later. In a third case an accidental erysipelas resulted fatally; in a fourth an intentional erysipelas was followed by no improvement in a sarcoma of the jaw.

Wyeth agrees with Coley that sarcoma may be cured by sepsis, particularly by that of erysipelas, though the products of the ordinary pus microbes are also potent. He believes that the sterile products of erysipelas streptococcus are also efficacious. Inoculation into the neoplasm gives best results, though the action is ordinarily through the blood. Adenoid carcinomata react scarcely at all; epitheliomata are sometimes favorably affected.

The discussion on malignant growths, held in the Section on Surgery and Anatomy of the American Medical Association (*Journal of the American Medical Association*, June 30, 1894), was noteworthy from the fact that the modern treatments of cancer—*i.e.*, cauterization, excision, and inoculation—were fully and ably set forth, with their respective claims to recognition and adoption.

As to cauterization, though its mode of application, its action penetrating beyond the tissue immediately destroyed and destroying the cancer cells of lower vitality, while leaving uninjured the normal tissues, and admirable results following its use, were clearly demonstrated, the general consensus of opinion was decidedly against it as a routine treatment, and with this verdict the great majority of surgeons are fully in accord.

Excision, particularly early excision, in the precancerous stage, if possible, was the method of choice, and it was indicated that when the value of this operation shall be more fully recognized, the ultimate mortality of cancer will be far less appalling than at present.

As for inoculation, this shows thus far merely possibilities. The method, however, seems to teach one lesson,—*i.e.*, that suppuration in and about the site of malignant growth exerts a distinct antagonistic effect on the extension of such growth; hence it would seem perfectly logical in such operations to encourage suppuration.

Reports on Therapeutic Progress.

TRANSFUSION.

Von Ziemssen (*Münch. Med. Woch.*, May 1, 1894) uses the following method of transfusion. Under very strict antiseptic precautions, he withdraws, by means of a syringe holding twenty-five cubic centimetres, blood from the median vein of the giver and injects it directly into the corresponding vein of the receiver. Three assistants are required. Three glass syringes with canulæ and a large vessel containing sterilized salt solution and standing

in a water-bath are also needed. The salt solution serves the purpose of washing out the syringe before it is used anew. In this way 200 to 300 cubic centimetres of blood may be injected without fever or local reaction. Unpleasant results never occurred. The destruction of the red cells cannot be considerable, as hæmoglobinuria was never present, nor yet free hæmoglobin in the blood. According to the author's experience, the good effects of injecting blood in acute anæmia is beyond doubt. In severe progressive anæmia it is more questionable. He reports such a case in a woman, aged thirty-eight, to whom seven injections, amounting in all to 900 cubic centimetres of blood, were given with considerable benefit. Subcutaneous infusion is inferior to transfusion, but is recommended if proper assistance cannot be obtained. There may, however, be pain at the site of the infusion, and a moderate degree of fever may also occur.—*British Medical Journal*, June 16, 1894.

THREE CASES OF ANEURISM TREATED BY VENESECTION.

DAVISON writes upon this subject in a useful paper, which he concludes as follows:

Bleeding in the treatment of aneurism is no innovation. It was, even according to Dr. Balfour, suggested by Hippocrates, and it formed the basis of the celebrated treatment of Valsalva,—a treatment which fell into discredit owing to the abuse of bleeding which it advised, and because, at the same time that it tended to consolidate the aneurism, it also tended to prevent this consolidation. Medical literature presents cases where spontaneous rupture of aneurisms has been followed by contraction of the sac, relief of symptoms of compression, healing of ruptured wound, and apparent prolongation of life. If such benefit can follow the spontaneous rupture of an aneurism, may not the same benefit be obtained by the harmless extraction of blood from a vein? The abuse of a remedy is not a sufficient cause for excluding its legitimate use, nor must the intelligent physician be bound by the fashion of the day, which at one time decrees abuse of bleeding and at another time its total rejection.

The dilatation of an aneurism is produced by the pressure of the blood stretching its coats, weakened by disease. If these coats retain contractile elements, it is evident that a diminution of the volume of blood within the aneurism, together with a diminution of the pressure of the blood, if carried to a sufficient extent, will enable the aneurism to contract; but the lowering of blood-pressure after hemorrhage is only temporary, and after a short time this pressure regains its former force. Does it, then, follow that conjointly with the return of the force of the blood-pressure the aneurism will again dilate to its former extent, and thus bleeding come to be of no value? Certainly not, for in order that the aneurism may return to its former degree of dilatation it is necessary either that in a few days changes shall take place within its walls, lessening their power of resistance, or that the blood-pressure shall attain to a degree which it had not reached before; for if, before, a certain amount of blood-pressure was necessary to keep the aneurism in its over-distended state, now that it has contracted, to keep it again stretched as before would require the same amount of blood-pressure that maintained it distended, plus another quantity necessary to overcome the contractility of the walls now contracted, and therefore in more favorable conditions to overcome resistance. It follows, therefore, that when the walls of an aneurism retain a sufficient quantity of contractile elements, the contraction which will take place on lessening the volume and the pressure of the blood after a good bleeding may, with judicious care, be maintained even after the blood-pressure has regained its former strength. In the treatment of aneurisms three principles must be kept in view,—the contraction of the aneurism, the hypertrophy of its walls, and, lastly, the deposition of fibrin within its cavity. The first indication can be carried out by a copious depletion, together with absolute rest for several months and the ingestion of but a limited amount of liquids. The second indication can be carried out by the internal administration of iodide of potassium, as recommended by Dr. Balfour, avoiding excessive doses, which may accelerate the pulse. The third indication requires, in addition to the above measures, a diet which, without being very rich to stimulate unduly the circulation, will at the same time be nutritive enough to produce a sufficient quantity of fibrin. The principle advocated in the treatment of aneurisms is not the impoverishment of the blood, but the temporary diminution of its volume and of its pressure, so as to enable the aneurism to contract and place it thus under circumstances more favorable for the operation of other remedial agents which tend towards its consolidation. Repeated bleedings at short intervals have been known to be positively harmful; but keeping in mind the above principle, the intelligence

of the physician will indicate when and how to bleed. Judicious bleeding in the treatment of aneurisms will prove to be a valuable element, by means of which alarming symptoms of compression may be quickly removed, instant death sometimes averted, and the patient placed under favorable conditions for the prolongation of his life.—*Lancet*, May 19, 1894.

TETANUS TREATED WITH ANTITOXIC SERUM.

GIUSTI and BONAIUTI (*Gazz. degli Ospitali*, May 12, 1894) describe a case of tetanus treated with antitoxic serum. The case is remarkable on account of its clinical course, its successful issue, and the amount and power of antitoxin used. The patient, a robust man, received severe lacerated wounds on the face—one of these being deep and dividing the zygomatic process—in a railway accident. All the wounds were freely contaminated by earth, and the patient's leg was also the seat of a simple fracture. Notwithstanding prompt and careful cleansing with antiseptics, etc., some trismus and exalted sensibility made their appearance on the day after the occurrence, leading the observer to suspect the onset of tetanus. Nevertheless, the trouble disappeared, and the patient did well until January 7,—twenty-one days after the accident. Undoubted tetanus then made its appearance, characterized by great respiratory and cardiac difficulties and obstinate vomiting, in addition to the more usual symptoms of a severe case. After three days of unavailing application of the ordinary treatment,—chloral, calomel, vapor-baths, etc.,—a consultation was held with Tizzoni, who at once instituted the treatment with antitoxic serum from a highly-immunized horse (antitoxic equivalent 1 to 10,000,000). On February 1 two injections of this serum (40 and 20 cubic centimetres) were given. After these the patient experienced a period of calm and got a little sleep. Next day, the temperature being high and tetanic symptoms still prominent, two injections (20 and 10 cubic centimetres) of serum from an immunized dog were given (relative power 1 to 10,000,000). The tetanic symptoms then disappeared for a time, to reappear, however, in a very mild form during the night. On February 3 an injection of dog's serum (10 cubic centimetres) was given in the morning, and in the evening 50 centigrammes of alcohol precipitate of the horse serum, dissolved in water. On February 4 to 8 further injections of dried precipitate or of dog's serum were made, although the non-appearance of further tetanic symptoms probably rendered some of these superfluous. From this time the patient's condition improved steadily. He was at last discharged cured. The total amounts of protective material used were: horse serum, 60 cubic centimetres; dog serum, 110 cubic centimetres; dried alcoholic precipitate of immunized horse serum, 2 grammes, equivalent to about 20 cubic centimetres of serum. Attention is drawn, first, to the early symptoms, appearing on the day after the accident, and due probably to absorption of a dose of ready-formed toxin from the contaminating earth; secondly, to the occurrence of a severe attack of "cephalic" tetanus after the long incubation period of twenty days; thirdly, to the complete failure of ordinary measures and the rapid success of the specific treatment; lastly, it was suggested that the dog's serum had probably a more potent effect than the other variety in reducing temperature. The dried precipitate of serum was somewhat difficult to use, on account of its imperfect solubility and the risk of contamination during the process of dissolving it.—*British Medical Journal*, June 16, 1894.

THE ACTION OF ASPARAGUS ON THE KIDNEY.

Three years ago WILKS sent a short communication to the *Lancet*, requesting the opinion of the profession on this subject. He therein stated that, in spite of books declaring asparagus to be a diuretic, he had observed that the very contrary was its action. Four letters came in reply, written by medical men. Three of them stated that from direct observation they had ascertained the inhibitory action of asparagus on the function of the kidneys, so that frequently only a third of the normal quantity of urine was secreted after eating this vegetable. The fourth gentleman said he had no knowledge of his own, but believed asparagus to be a diuretic, as he had always understood it to be so. The question of this vegetable's action in the economy is of little importance when it is so universally eaten and approved of, but it is one of interest in connection with the history of medicine as a science and art. In other sciences knowledge has grown from small beginnings, so that they have a solid foundation and superstructure; but the practice of medicine has existed from the remotest ages and was born of superstition. Consequently, a large part of our advance has been by getting rid of and overthrowing error. The writer has on his shelves a "Herbal," published about a hundred years ago, describing the

value of a vast number of plants which are now discarded as useless; but that a positive error, and one the very reverse of the truth, as regards the action of a well-known vegetable should still be propagated in books is a most remarkable fact and, as regards the whole subject of therapeutics, a very sad one.—*Lancet*, April 28, 1894.

PIPERAZIN.

Apropos of Dr. Stewart's interesting paper recently published in the THERAPEUTIC GAZETTE, the following summary of a paper by GORDON SHARP is of value:

1. Piperazin is not wholly oxidized in the body, and may be detected in the urine of those to whom it is exhibited.

2. Piperazin in solutions of one per cent. in normal urine, when kept in contact at a temperature of 39° C. (body temperature) for a given time, has the property of dissolving to a great extent a fragment of a uric-acid calculus.

3. That the stronger the solution of piperazin in urine (up to 7.5—) the earlier did the solvent action begin and the more rapid was the completion.

4. That, notwithstanding this, with the stronger solutions of piperazin in urine the rate of solubility was not so markedly rapid over the weaker solutions as might be expected.

5. That the solvent action of piperazin in similar circumstances was greater than any other of the substances that were employed,—namely, borax, lithium citrate, sodium carbonate, and potassium citrate.

6. That piperazin, in weak and strong solutions in urine, converted the undissolved portion of the calculus into a soft granular or pulpy condition.

7. That neither borax, lithium citrate, sodium carbonate, nor potassium citrate in similar circumstances rendered the fragment of calculus soft or pulpy.—*British Medical Journal*, June 16, 1894.

TREATMENT OF SEA-SICKNESS BY CHLOROBROM.

In the THERAPEUTIC GAZETTE for September 15, 1892, p. 617, we published an abstract of an article on the use of chlorobrom in sea-sickness by CHARTERIS, who now makes a further report:

1. In long sea-voyages no prophylactic benefit can be secured by the use of chlorobrom unless for two nights before embarkation the passenger pays due attention to the stomach and bowels by taking a cholagogue pill. Further, in the case of a person who dreads a voyage, a dose of the solution should be taken.

2. The diet on board ship should be "spare and dry." Soups, pastry, and sweets should be especially avoided, and no full meal should be indulged in. A hypnotic dose (1½ tablespoonfuls for a male and 1 tablespoonful for a female) should be taken for three nights.

3. In short voyages, when the steamer leaves, perhaps, at 10 P.M., the passenger should immediately retire to rest and take one of the doses mentioned.

4. In a shorter passage across the Channel a teaspoonful should be taken before going on board.

5. By following these directions immunity from sea-sickness is obtained in the great majority of cases, but if they be not followed it is to be remembered that chlorobrom has no effect in arresting an outburst of vomiting. If it is given in a teaspoonful dose every ten minutes until a tablespoonful and a half or a tablespoonful have been taken, it will almost invariably check retching and depression.—*Lancet*, April 21, 1894.

INFECTION BY THE TRICHINA SPIRALIS.

ASKANAZY (*Centralbl. f. Bakt.*, Bd. xv., No. 7) observes that two questions await solution in regard to the process of infection by the *Trichina spiralis:* (1) how do the embryos which, according to the general view, are deposited only in the lumen of the bowel, pass through its wall? (2) how do they reach the striated muscles? In the belief that an examination of the bowel-wall in cases of trichinosis would assist in the decision of both questions, Askanazy infected rabbits with the parasite; in seven to ten days the intestines were removed and placed for fixation in Flemming's fluid. Pieces were embedded in celloidin, cut, and stained with safranin. The following facts were established:

1. The female parasite penetrates into the villi and mucous membrane generally, not deeper, however, than the muscularis mucosæ, and lies in that membrane or in a chyle vessel.

2. None of the specimens showed embryos lying free in the tissues of the intestinal wall or in its blood-vessels.

3. Embryos were found in the lumen of the chyle vessel of a villus.

In one case a parasite filled with embryos projected into the chyle vessel, which also con-

tained them, thus rendering it very probable that they had been deposited in the vessel. The investigation would appear to show that the young trichinæ are deposited in the lymphatics and are carried away by the lymph-stream. The discovery of embryos in the mesenteric glands (Virchow, Gerlach) is in accord with this opinion. The following considerations are against the old view that the embryos are deposited in the lumen of the bowel and subsequently bore their way through its wall:

1. The uncertainty with which the embryos are found in the bowel lumen, as shown by a review of the literature on trichinosis.

2. The author's examination of a great number of fresh specimens of intestinal mucus failed to show a single free embryo, even when the female trichinæ were filled with young.

3. Embryos were found only twice in the bowel lumen in a large number of sections, while the adult parasites were plentiful there.

4. As the parasite deposits a large number of eggs, embryos should be numerous in the bowel contents if the deposit took place in the lumen. Against the boring theory is the fact that nobody has yet seen an embryo lying free in the bowel wall. The rare occurrence of young parasites in the lymphatics in these sections is explained by the author on the theory that they had been rapidly carried away by the lymph-stream.—*British Medical Journal*, June 16, 1894.

BICHROMATE OF POTASSIUM AS A REMEDY IN GASTRIC AFFECTIONS.

Notwithstanding the assertion made in 1883, and supported by much illustrative evidence by so high an authority as Vulpian, of the value of bichromate of potassium in the treatment of several forms of gastric affection, this substance has not yet gained a position among the many substances that are used in the treatment of these affections, and but meagre reference is made to it in only a few works on medicine and materia medica. Previously to Vulpian's recommendation it had been used by internal administration as an emetic, and with varying success in syphilitic, broncho-pulmonary, and nervous disorders; and Drysdale had advocated its employment in affections of nearly all the important organs of the body. Having in 1884 treated with gratifying success a case of persistent gastric disorders by the administration of small doses of bichromate of potassium, he has since that time administered it in a large number of cases. The results have been so favorable that he feels justified in stating his opinion of the therapeutic value of this substance and in briefly recording a number of the cases of gastric disorder in which it was used by him. With a few exceptions, the cases have been those of hospital patients. While such patients give the best opportunity for determining the effect of medicinal substances, it is not to be overlooked that, in some respects, they are also placed in more favorable conditions for successful treatment than the majority of private patients. In order to simplify the therapeutic problem, the medicinal treatment was as far as possible limited to the administration of bichromate of potassium. This limitation, however, could not be adhered to in all cases; but only those cases will be described in which the drug alone was administered, or with the addition of other remedies, such as purgatives, rendered necessary by the circumstances of the patient, and unlikely to obscure the effects of the chief remedy. He records the cases in two groups, the first comprehending eighteen cases of various forms of dyspepsia unassociated with evidence of gastric ulcer, the second ten cases in which distinctive symptoms of ulcer had been present at some previous time.—*Lancet*, April 14, 1894.

TREATMENT OF PERIPHERAL NEURITIS.

LEYDEN (*Berl. Klin. Woch.*, No. 20, 1894) discusses the treatment of multiple neuritis. He considers that in the case of neuritis following acute specific diseases, care during convalescence, as to nourishment, rest in bed, and avoidance of over-exertion, contributes to prevent its occurrence. "Etiological treatment" (removal of the cause) and treatment of the primary malady as in diabetes are of the first importance. There is no specific remedy for multiple neuritis, and treatment by drugs does not play a very important part. Owing to the fact that rheumatism is not infrequently an element in the etiology, salicylate of sodium and other antirheumatic drugs had been used without producing any good results in the majority of cases. Antipyrin, phenacetin, exalgin, euphorbia, and methylene-blue were sometimes of use for the relief of pain, but it was often necessary to resort to morphine, chloral, sulphonal, etc. Strychnine, formerly much used, but lately fallen into the background, deserved to be tried; by increasing the excitability of the affected muscles, it favored the return to normal function and nutrition; it ought especially to be resorted to in progressive cases in which the respiratory movements were threatened. Leyden prefers to use it as a subcutane-

ous injection ($\frac{1}{70}$ grain to $\frac{1}{20}$ grain twice daily). Massage and baths were valuable auxiliaries, which were indicated, especially the latter, in the later stages of the disease. General hygienic treatment was of much importance. Rest—as a rule, rest in bed—was of the first importance in the early stage; in the later stage, feeding. Finally, in the latest stages of all, moral suasion, rousing the patient's latent energies, was often of great value. Passive movements, and encouraging the patient to make active movements, were generally attended with better results than massage in this stage. Electricity, formerly used too much, was now used too little, but its usefulness was greatly limited by the fact that in many cases the pain caused was too great to permit the treatment to be continued.

A LARGE QUANTITY OF MORPHINE TAKEN HYPODERMICALLY WITH SUICIDAL INTENT; RECOVERY.

The following case of attempted suicide is recorded, not from any novelty in the way of treatment, but on account of the enormous dose (estimated at 12 grains) that was taken and from which recovery ultimately resulted. The writer was sent for one evening about 11 P.M. to see a servant-girl who had "poisoned herself with opium." On seeing her a very few minutes after she had taken the opium, the reporter found her already stuporous, drowsy, and with her pupils much contracted. She had taken some morphine hypodermically, the bottle and syringe being by the bedside. Subsequently, inquiry elicited the facts that she had been accustomed to go to the druggist with her master's prescription, who was taking morphine hypodermically under medical advice, and that her knowledge of his taking it in this manner suggested a ready means of self-destruction. The druggist, believing that she had come for the drug on her master's order, had no hesitation in supplying her. She obtained the hypodermic syringe by the same means. On examining the girl's arm, seven recent acupunctures were readily discernible, and she subsequently stated that she had taken six syringefuls of the solution. The syringe was a 20-minim one, and at least three drachms of the solution were missing from the bottle. There was no sign on the night-dress or bedclothes of any of the solution having been spilt, and only one of the acupunctures was bleeding; it is probable, therefore, that two drachms of morphine were taken. Unfortunately, this can, of course, be only a matter of surmise. The usual means were employed to keep the patient alive,—viz., atropine (four grains in $\frac{1}{10}$-grain doses were given during twelve hours at short intervals, without any result on the pupils), galvanism, wet towels, cold coffee, exercise, artificial respiration, etc. The respiratory centre was affected in far greater degree than the cardiac. Twice during the twelve hours following the administration of the morphine artificial respiration was called for, once for twenty minutes and again for five. Lividity and blueness of the face were constant and pronounced. The iris was contracted to such an extent that the pupil appeared to be quite absent, not even the space of a pin's point being discernible in the muscle, and the eye appeared as covered entirely by the iris. The conjunctival reflex was absent for some hours, and the eye appeared glassy and dull. After twelve hours' treatment symptoms of improvement showed themselves, but for no less than thirty-six hours after taking the poison had the treatment to be persevered in at intervals. If the patient was allowed to sleep, even after twenty-four hours, the respiration ceased after two or three minutes, and lividity and blueness of the face rapidly supervened. She required constant rousing, and even exercise from time to time. The girl was nineteen, and had never to her knowledge taken morphine previously in any form. The solution was of British Pharmacopœia strength.—*Lancet*, March 17, 1894.

FERRATIN.

Ferratin is prepared by exposing a mixture of certain proportions of white of egg and an iron salt to the action of slight heat in an alkaline medium. It is a red-brown powder, little soluble in distilled water, but soluble in presence of soda. MARFORI (*Ann. di Chimica e di Farmacologia*, February 1, 1894) has investigated this substance, and his conclusions are as follows: It contains from seven to eight per cent. of iron. It is absorbed in notable quantities from the intestines, and when injected directly into the blood-stream it does not appear to be excreted either by the kidneys or the intestines, save in minute quantities. This is a great contrast to what happens with the inorganic salts of iron, which are mainly excreted into the intestines. It is a remarkable fact that the liver of many animals examined is found to contain naturally a substance closely resembling the artificial ferratin, and in considerable abundance. It appears to be also identical with the "hæmatogen" isolated by Bunge from the egg. Bunge proved that this substance serves as material for

the formation of hæmoglobin, so that ferratin should be a really valuable blood food. Clinical experience has proved it to act in this way, and without causing any constitutional disturbance. It may be given in doses of 15 to 30 grains daily, care being taken not to associate it too closely with acid materials.—*British Medical Journal*, June 16, 1894.

THE ANTITOXIC FUNCTION OF THE LIVER.

Padua, through Professor Lussana, Brussels, through Professor Heger, and Geneva, through Professor Schiff, have of late years been associated with special investigations into the physiology and pathology of the liver, and now Rome has fallen into line with these sister schools by a series of interesting researches into the same viscus. It has been already established by the above-named biologists that the liver possesses a power of retaining certain poisonous alkaloids in high proportion and in their most active state,—that is, when injected into the circulation and not merely absorbed by the mouth. Explanations have been hazarded as to this protective power of the liver against these toxic agents, and quite recently Dr. Schupfer, working under Professor Colasanti, Lecturer on Physiological and Clinical Chemistry in the University of Rome, has contributed elaborately to the solution of the question. His experiments were made on frogs,—animals which tolerate removal of the liver well, and keep alive for days after the operation, nay, in some cases, for weeks. The alkaloids were injected into frogs in their normal condition and into those which had been operated on, and every care was practised to watch the phenomena resulting. The alkaloids used were cocaine, atropine, apomorphine, and pilocarpine. Dr. Schupfer embodies his conclusions in a memoir read before the Accademia Medica di Roma, and they are to the following effect: the liver, by its sole intrinsic action due to the specific activity of its cellules, can diminish the toxic power of the alkaloids with which it is brought into contact. Such action is manifested not only in the case of poisons introduced through various channels into the organism, but also in the case of poisons elaborated internally within the organism itself in consequence of putrefactions or of products due to the activity of the tissues. From this he deduces a practical lesson,—that, namely, of having recourse to internal disinfections and to a special alimentation, so as to obviate or to minimize "autotoxication" in all those maladies in which the liver does not perform its functions normally.—*Lancet*, March 17, 1894.

TREATMENT OF APOPLEXY.

PRESTON, of Baltimore, believes that in the treatment of apoplexy more might be done in the prodromal stage if this condition were more carefully studied and oftener recognized. There are no constant or certain prodromata, but in a considerable proportion of the cases here related the history obtained afterwards from the patients showed the existence of headache, vertigo, or a sense of fulness in the head, numbness of one side, etc. These symptoms in some instances existed for a week before the apoplectic attack. It is very important to heed these warnings, especially in cases where there is atheroma of the vessels, or where there is high arterial tension without atheroma. Rest, vascular sedatives, nitroglycerin, large enemata, will often modify the force of the circulation and thus tend to avert the rupture of the artery. Some years ago the writer called to see an elderly woman, stout, with flushed face, headache, and unusually high arterial tension. While waiting for the family physician, she was kept absolutely quiet, with ice to her head. While consulting in the next room, the patient, against orders, got up to use the commode; the arteries could stand no further strain, rupture occurred, and she died in half an hour, with all the symptoms of intracranial hemorrhage. Venesection would probably have averted this disaster. It rarely happens that the physician sees clearly enough to make use of bloodletting. After the rupture of the artery has taken place, it is doubtful whether venesection does any good. The most important part of the treatment of apoplexy is rest. There is no way by which the bleeding can be stopped, and it is probable that in the great majority of cases the increased intracranial pressure tends to control the hemorrhage. The ruptured artery or miliary aneurism is small, as a rule, and it is generally soon occluded by clot. If the amount of hemorrhage is moderate and not in a vital part of the brain, recovery, more or less complete, will take place if the clot remain in its first position.

Very often it happens that the original location of the clot was not specially dangerous, but from gravity, or as the result of exertion, the clot has forced its way through the soft brain-tissue and done irreparable injury to more important structures. This can often be seen post mortem and the track of the clot made out. From this it follows that the great-

est care should be exercised to prevent any more moving of the patient than is absolutely necessary. If it be possible, the patient should be laid down on a sofa or mattress in the room where the attack occurs and no attempt at movement made for twelve or twenty-four hours. It is better to slightly elevate the head by pillows, since this probably tends to modify the force of the heart's action in the cerebral vessels, and at the same time allows respiration to be carried on rather better than when the patient is perfectly flat. Opening the skull has been resorted to, but it is doubtful whether this is advisable, except in the case of meningeal or cortical hemorrhage. The ice-cap to the head is of some use in allaying restlessness, and is extremely good treatment for the relatives and friends. In regard to drugs in this early stage there are practically no therapeutic indications that can be successfully met. The use of ergot and that class of remedies is of more than doubtful propriety. Aconite may sometimes be used to advantage in controlling a too forcible heart's action. As soon as the patient can swallow, it is the author's custom to administer a mixture of bromide and iodide of potassium, 30 to 40 grains of the former and 10 grains of the latter, and this is kept up for several days, then the bromide is omitted and the iodide used alone in increasing doses. In regard tc the custom of administering croton oil or some drastic purge during the early stage, although sanctioned by almost immemorial usage, it is not only useless, but exposes the patient to the risk of making dangerous exertions, besides putting him in a filthy condition. The same objections in part apply to blistering and to the use of mustard. It is important to attend to the bladder and draw off the urine at regular intervals. The throat should be kept as free from mucus as possible and the surroundings of the patient rendered comfortable. These points have perhaps been dwelt upon with unnecessary minuteness, but one so often sees these cases handled in a mischievous manner. The physician, realizing the futility of any active treatment, is too apt to yield to any suggestion made by the family, and the object of this paper is to insist upon a simple and rational treatment of this condition.—*Maryland Medical Journal*, June 23, 1894.

NOTE ON THE ACTION OF IODINE.

The value of iodine as an absorbent has long been known. It is used to cause absorption of enlarged glands, thickenings due to chronic inflammation, and serous effusions, and this action is believed to be due to a stimulation of the lymphatic system. Perhaps the most remarkable results due to the action of a compound of iodine as an absorbent are those which were attained by Major Holmes and Captain Cunningham in the treatment of goitre in India. They recommended that the enlarged thyroid should be smeared over with the red iodide of mercury ointment, and that then the patient should be made to sit with the neck exposed to the rays of the sun or of a hot fire for many hours. The results were extraordinary. Sixty thousand natives were treated gratuitously in two years, and a cure was almost always effected. Turner's object in presenting this communication is to offer a suggestion from the point of view of the physicist as to the mode of action of the iodine in these cases. We use iodine in physical experiments to cut off the visible rays of the spectrum. A solution of iodine in bisulphide of carbon will quench the visible rays of the sun, but will transmit the invisible heat rays. The solution is, in fact, remarkably transparent to the heat rays; it is diathermatous. Professor Tyndall, in 1868, was the first to point this out. The fact that the action of the red iodide of mercury is much intensified by exposing the patient to the direct rays of the sun has appeared to the writer to depend upon the physical action of the iodine. Further, the fact that the red iodide is the most efficacious points in the same direction, because the red substance would also serve to transmit the heat rays only. The solar radiation would be filtered by the application, and the gland would be subjected to the full blaze of the calorific rays without the vibrations of its molecules being altered by the visible rays. Professor Tyndall made some experiments with paper reddened by the red iodide, and found that it was also highly transparent to obscure radiation; it therefore falls into line with simple iodine. If the suggestion above made is correct, it is improper to cover the diseased parts to which iodine has been applied; we ought rather to expose them freely to the rays of the sun, or, failing that, to those of a good fire.—DAWSON TURNER, *Lancet*, May 12, 1894.

NOTE UPON PROFESSOR ANSCHUTZ'S PURIFIED CHLOROFORM.

PILCHER, the well-known surgeon of Brooklyn, contributes an article on this substance to the *New York Medical Journal* of June 23, 1894.

Professor O. Weitzel, of Bonn, has recently brought forward new chloroform, for which the claim is made by Professor Anschutz, its origi-

nator, that by the employment of salicylic anhydride ($C_7H_4O_3$), obtained by the action of phosphorus oxychloride on salicylic acid, forming what is known as salicylide, for purposes of purification, an absolutely pure chloroform results. By the action of the salicylide upon the chloroform a salicylized body is obtained, in which the chloroform serves the same part as the water of crystallization in many salts, and consequently when heated the chloroform is separated in a pure state.

The first point to be noted in connection with its use is the fact that, owing to the absence of that pungent odor so commonly present in ordinary chloroform, there is a marked absence of hesitancy in the respiration and the occasional refusal to breathe observable in many cases where the latter is employed. The new preparation possesses a rather pleasant aromatic odor.

Whatever the cause, it is a well-known fact that in many persons, particularly those who have been in the habit of imbibing rather freely of alcoholic stimulants, even with the most careful administration of ordinary chloroform, there is a well-marked stage of excitement, this frequently amounting to violent struggling. Even in this class of cases this stage of the administration is only marked by an occasional exclamation when the salicylide chloroform is used.

The narcotic effect of the agent is obtained somewhat less rapidly than with common chloroform, and the patient must be carefully watched during the progress of the operation, to see that he does not come out from under its influence. Slow narcotism and quick recovery are not considered disadvantages by skilled anæsthetizers, for the reason that so profound an effect is not obtained, the purposes of the anæsthetization are completely fulfilled, and the element of danger is largely eliminated. Complete anæsthesia can be brought about in ten minutes; a longer time is very exceptionally required.

Every surgeon of experience dreads the cases in which chloroform produces a very rapid and at the same time a profound narcotic effect. In fact, statistics of fatal chloroformization show that in the large majority of cases the dangerous symptoms supervened very shortly after the commencement of the administration. It is likewise true that the cases in which violent struggling takes place are also to be dreaded, and many surgeons refuse to permit of the continuance of the chloroform, substituting ether therefor even when this has been apparently contraindicated, preferring to accept the chances of the supposed untoward effect of this agent upon atheromatous vessels, weakened respiratory organs, or diseased kidneys, rather than risk the occurrence of a catastrophe upon the operating-table.

Next, the condition of the pulse is of importance in connection with the employment of the new chloroform. The heart's action, in no case under the writer's observation, has been either accelerated or weakened by its use. On the contrary, when the pulse had been weak and excited prior to the administration, as frequently observed in nervous women, as soon as the effect of the salicylide chloroform has been obtained a most pronounced improvement has been observed in this respect. A pallid face under these circumstances becomes of the pinkish hue of health, and remains so until long after the effects of the chloroform wear off; provided, of course, that excessive loss of blood, the prolonged manipulation of the abdominal contents, or other untoward circumstances incident to the operative procedure do not occur to produce the opposite effect.

Next, it is to be noted that patients recover consciousness much more promptly following the administration of Anschutz's chloroform than with the article heretofore in use. This occurs without those much-dreaded after-effects which are so marked a feature following anæsthetization with either chloroform or ether, as usually employed. In the case of an old man of seventy-four, upon whom the author operated for cerebellar abscess following middle-ear disease, in the practice of Dr. Zabriskie, of Glen Cove, the patient arose from the operating-table and walked across an intervening parlor to his bedroom, without apparent effort, within fifteen minutes after the withdrawal of the anæsthetic. This is not an exceptional experience, for it has been repeatedly noted that a marked absence of the usual head-symptoms, restlessness, muscular weakness, nausea, vomiting, and anorexia is a pronounced feature of the use of this agent.

A word as to the method of administration. At the present day no surgeon of experience will permit his anæsthetizer to administer chloroform by any other than the drop method. The days of forcing the administration by pouring the chloroform in a stream upon the mask or folded napkin have gone by. Steadily supplying the chloroform drop by drop, keeping up by this means the administration of a small dose frequently repeated, produces the desired effect in a length of time sufficient for all practical purposes, and relieves the oper-

ating surgeon's mind of much anxiety in this respect. While chloroform purified by Professor Anschutz's process can be given with somewhat greater freedom without the risks incident to rapid administration of common chloroform, yet the author himself pursues the drop-by-drop method with the head lowered, precisely as he would in ordinary chloroformization.

The quantity of the new chloroform required, even in the hands of those not skilled in its use, averages about one cubic centimetre for each three minutes of complete narcosis. In case the anæsthetizer is accustomed to its use, and keeps the patient just evenly balanced between unnecessarily deep narcosis and the beginning of the return of consciousness, a smaller quantity will suffice.

It is furnished by the manufacturers in brown-colored, graduated bottles, containing fifty grammes each, a quantity sufficient for the purpose of an average operation. An exceedingly simple dropper device is furnished with each bottle.

INTRALARYNGEAL THERAPEUTICS.

GORDON SHARP, in writing on this subject, says that, like everything else under the sun, the idea of the treatment of diseases of the respiratory tract by the direct application of drugs to the interior of the larynx is not a new one, but it is only within eight or ten years that it has been practically employed, and that in Edinburgh and Vienna chiefly. At first intralaryngeal injection was chiefly made use of in the treatment of phthisis, either with the view of applying antiseptics directly to the lungs, or of killing the bacillus, or of alleviating the troublesome cough. If with the former intention, it is certainly highly utopian.

The latest contribution to the literature of the subject from the pen of Professor Grainger Stewart shows the value of this plan of treatment in bronchiectasis, and it is probable that this is the disease which is likely to be most influenced by intratracheal treatment. By the old-fashioned methods of giving creosote or guaiacol by the mouth or by inhalation, patients are made ill before one is able to do them much good, for it cannot be doubted that some of the attacks of sickness and vomiting which occur in the course of the treatment of bronchiectasis by the persistent use of creosote are due to poisoning, and at the best one may only be setting a thief to catch a thief, for some of the ptomaines due to decomposition of the secretions in the dilated bronchial tubes must have entered the circulation. By applying creosote, guaiacol, or other antiseptic directly to the interior of the trachea, whence it is certain to trickle down into the bronchial tubes, one may be able to prevent to a great extent the formation of putrefactive bodies, and it is the author's belief, founded upon experience, that this may be accomplished, and that by passing down antiseptics the patient can be prevented from giving himself mild attacks of septicæmia, which not only wear out his strength, but may even cut him off, and he is being placed on the high road towards recovery. The most probable cause of bronchiectasis is an atrophy of the walls of the bronchial tubes. The resulting dilatation is not a final one, but goes on increasing unless checked, and nothing so much tends to aggravate the condition as the filling up of the cavities and decomposition of the contents, with the production of foul gases. Now, if the secretion can be lessened and at the same time kept comparatively sweet, the tissues are given a chance of regaining a certain amount of tone, while at the same time those septicæmic attacks already referred to are prevented, while also the comfort of the patient is increased by diminishing the disagreeable odor and by relieving the irritating cough so frequent in bronchiectasis. Drugs injected into the trachea, while exerting a local action in the lung and bronchial tubes, find their way into the circulation, as proved in a case. A solution of menthol and guaiacol in olive oil so administered was detected in the urine in two hours, or rather the menthol was found, but the guaiacol could not be discovered, although tested for on several occasions. This points to guaiacol being broken up in the kidneys into some body which does not give the reaction. One can hardly hope to obtain brilliant results by the intralaryngeal method in cases of phthisis. Antiseptics so used have little effect upon the course of the disease in general; but for the alleviation of the cough a ten-per-cent. solution of menthol in olive oil, or in one of the pure preparations of the higher paraffins, is often of great service.

So much want of knowledge exists as to the process of intralaryngeal injection that one may be excused for giving a short account of the manner in which it is carried out. Although at first sight it appears to be a difficult operation, it is really a very simple one and easy of performance, only requiring a little boldness. The author has performed it nearly a hundred times, and on no occasion have any of the patients vomited. The patient sits facing the light; ask him to take hold of his tongue and

pull it well forward and to take a few deep breaths. The latter not only fill the chest, but likewise render the throat less sensitive. The operator either stands or sits not quite opposite to the patient, a little to the right. The syringe having been previously filled and rendered free from air by forcing a little of the fluid along the tube, the nozzle meanwhile being turned upward, he then passes the point of the syringe over the middle of the tongue; in this way the tip of the epiglottis is avoided. The operator should endeavor to just clear the tongue and strike a line which would pass straight along the middle of the dorsum of the tongue, and when extended backward would touch the back wall of the pharynx. In this way he reaches the glottis, and gently but firmly forces the nozzle of the syringe into the trachea at the moment the patient takes a deep inspiration. The patient soon gets to know when the syringe has gone to the right spot. The piston is now moved and the fluid drops slowly into the larynx. One must catch the glottis just as a deep inspiration has been taken, for soon the patient wants to inspire again, and with the glottis plugged this is impossible; but in every case the writer has found the time sufficient in which to inject one fluidrachm of oily fluid, and, if it is desired, the operation can be repeated even five times at a sitting without evil effects; in fact, in no case have I found the least discomfort follow. The first time of applying a five-per-cent. solution of cocaine hydrochlorate may be painted over the throat to render it anæsthetic, but the after-effects are dreaded by the patient who has once had this treatment, and if the syringe be boldly handled the patient experiences no discomfort. It is the shaking hand which causes tickling and so retching. It is like swabbing out the throat. The experienced laryngologist never causes his patient to vomit; it is only the beginner who is afraid to "lay on" who does that. At first it is perhaps also advisable to employ the laryngoscope, but in using it a single movement of the patient renders all dark, and as soon as confidence is gained it may be given up. The syringe the writer employs is one known as the Beehag in Edinburgh. The barrel is of glass and the mountings and nozzle are of black vulcanite, while the finger-rings are of electroplated material. It is objected to by some that this nozzle, being of vulcanite, cannot be boiled, and so disinfected, as could be done were it of metal. This difficulty can be so far overcome by the use of antiseptics and by each patient having a nozzle for himself. This does away with all likelihood of disease being conveyed from one person to another. Vulcanite being softer and more pliable than metal, there is less likelihood of injuring the soft parts. When about to use, the nozzle is screwed on and the point is turned upward, the piston being slowly moved so that some of the solution is ejected and all air removed from the nozzle and barrel.

As already stated, the vehicle for the application of drugs in this way may either be olive oil or one of the paraffins, and perhaps the latter is to be preferred because it does not become rancid. The drugs employed are chiefly of an antiseptic nature and belonging to the aromatic and tar series, such as creosote, guaiacol (two per cent.), menthol and thymol (five to ten per cent.), salol (five per cent.), salicylic acid (two per cent.), carbolic acid (one per cent.), and other drugs. A useful combination is the one suggested by Professor Grainger Stewart, consisting of guaiacol (two per cent.), menthol (ten per cent.), and olive oil (eighty-eight per cent.). It is non-irritating, and 1 or 2 fluidrachms may be injected into the trachea twice a day in cases of fetid bronchitis, bronchiectasis, or pulmonary phthisis. Other drugs may be used, provided they are conveyed in a non-irritating fluid and are of such a nature as not likely to cause local injury.—*Lancet*, April 14, 1894.

THE OXYTOCIC ACTION OF SALICYLIC ACID AND ITS COMPOUND WITH SODIUM.

VINEBERG concludes an article on this subject as follows:

1. Salicylic acid and its compounds may be found useful in scanty and delayed menstruation.

2. They should not be administered to pregnant women who have a predisposition to abort or who suffer from menorrhagia and metrorrhagia.

3. Their administration should be watched carefully in all cases of pregnancy, and on the appearance of any "show," or anything resembling labor-pains, they should be discontinued.—*New York Medical Journal*, June 23, 1894.

THE MORTALITY UNDER THE CÆSAREAN OPERATION IN GREAT BRITAIN DURING THE LAST EIGHT YEARS.

R. P. HARRIS, of Philadelphia, writes on this topic in the London *Lancet* of May 19, 1894:

Before discussing the relative merits of these two operations and their risks respectively, it

may be well to consult the British records of the former for the period since the improved method of performing it was in a measure introduced in 1886, as there is evidently in London a prevailing error as to what has been accomplished in the saving of life in Great Britain. When we look back to the early record of Dr. Thomas Radford, with its eighty-four per cent. of maternal deaths, and compare it with the results of cases we have recently collected, we find much ground for encouragement, although it is evident that much more might be accomplished in reducing the death-rate. The Cæsarean operation early performed, or done before labor, upon a good subject, has a much lower rate of mortality than when the woman has been exhausted by a long labor, and especially where the numerous attempts have failed to deliver under the forceps, version, or craniotomy.

When we group together all of the cases recorded for a given country, and state how many died and how many recovered, we get a very imperfect idea of the danger of the operation *per se*. We have a general knowledge of the risk, but what we require to look into and know is why one died and another did not, and it is the acting out of this knowledge that will eventually reduce the death-rate to a moderate percentage. If men had less fear of the operation, it would be undertaken in good season and result in fewer deaths. In order to find what has been the amount of loss in England and Scotland since November 1, 1886, we made a careful search for all of the published cases, and obtained the following,—viz.: For London, twenty-two operations: women died, nine; children lost, five. For Glasgow, thirty-two operations: women died, five; children lost, (?).* For the provincial towns, six cases: women died, five; children lost, three; making a total of sixty operations, with forty-one recoveries and (?)* children saved, a mortality of nearly thirty-two per cent. of the cases, London losing forty per cent. Not being able to obtain the unpublished operations, we have failed to give a full list, but the proportion would not probably be materially altered. Our record, published and not published, for the United States, commencing with 1882,—the year the improved operation was introduced,—now shows one hundred operations, with thirty-eight deaths. Out of the first fifty, twenty-four died, and of the second fifty, fourteen died. There were sixteen operations in 1893, with four deaths. This shows that there is no difference in the results of the two countries; both are far from creditable and might be made much more so. Our cities should at least do much better, and try to make some approach towards the successes of Leipsic and Dresden. Philadelphia has made a step forward by saving thirteen women and fourteen children under her last sixteen operations; two of the three deaths were in cases having very unfavorable prognoses. When we come to examine the dangers and results of symphyseotomy, where it has been carefully and thoroughly tested, we find a more encouraging record. Professor Paul Zweifel, of Leipsic, has given both operations an extended trial, with the following results: by the Cæsarean operation he lost the fourteenth and twentieth cases out of a total of thirty; and under twenty-three symphyseotomies he lost two children, but no women. We know of no fairer comparative test than this, as the same operator made both trials. We have had forty-four symphyseotomies in the United States, with a loss of five women and eleven children, five of the latter having been already dead before the operation. Compare this with our last forty-four Cæsarean sections, and we find: women lost, twelve; and children lost, twelve. Mortality of women under symphyseotomy eleven and four-elevenths per cent., and under the Cæsarean section twenty-seven and three-elevenths per cent., or more than double. A great deal has been said about the disabilities produced by symphyseotomy, but we have found very little of any form here. As the children delivered in our country under this operation have averaged eight pounds, we propose to limit the conjugate vera to two and three-quarters inches. The Italian subosseous method we believe to be the best form of operation. In primipara the Neapolitan operators secure safety to the soft parts by letting the woman in many cases deliver herself. At one time three out of four women were left to nature after the section, but now delivery by the forceps is much more common. With proper care there should seldom be any strain upon the pelvis or injury to the vagina or bladder. Women have in a number of instances been operated upon twice, and one subject in Philadelphia has been delivered of living children, once by the Cæsarean operation and twice by symphyseotomy. She would not consent to any sterilizing method being made use of. The last twenty-eight symphyseotomies in the United States proved fatal

* We have not the results as to the children in twenty of Professor Murdoch Cameron's cases; under the other forty operations there were nine lost.

to but two women, or seven and a half per cent. It will be a long time before the Cæsarean operation can accomplish this in either England or America. When we can average fifteen per cent. we may feel encouraged. Single operators like Professor Cameron may save ninety per cent., but in general practice we do not expect so low a death-rate as one in ten.

THE TREATMENT OF TAPE-WORM IN CHILDREN.

In the *Journal des Praticiens* for May 26, DR. DESCROIZILLES relates the case of a girl, twelve years old, who had tape-worm. She complained of pains in the head, and her appetite was capricious. Diarrhœa and constipation alternated, and traces of tape-worm were seen in the stools. The author prescribed eight grains of calomel, and three days later the same quantity of santonica. This was followed by the expulsion of fragments of the tape-worm, thus confirming his diagnosis. Dr. Descroizilles hesitated to interfere directly by radical treatment, but owing to the persistence of the parents, determined meanwhile on an immediate intervention, and the following method was employed:

1. For two or three days a special diet, such as fish or vegetable soup, eggs, milk, and moderate quantity of bread. 2. During the last twenty-four hours nothing but milk. 3. On the day before the attempt at expulsion, towards evening, a laxative enema to be given. A second enema also to be given three hours before the administration of the following remedy: 4. Ethereal extract of male fern, 2 drachms [A large dose.—ED.]; calomel, 7 grains; peppermint water, 2½ drachms; gum-arabic, 75 grains; syrup, 5 drachms; distilled water, a sufficient quantity to make a mixture of two ounces. A tablespoonful to be taken every ten minutes. 5. Several hours later an enema of castor oil (of from 6 to 7 drachms) to be given.

Dr. Descroizilles prefers the ethereal oil of male fern to quince-seeds, kousso, pomegranate, and other preparations of male fern. He prefers it also to pelletierine, the action of which is less regular. It is the best remedy for children if it is given in capsules or in gelatin and sugar.

The author is disposed to try a formula given by M. Duhourcau, who combined green ethereal extract of male fern, chloroform, castor oil, and croton oil. The chloroform renders the worm torpid, the extract of male fern is a tæniacide, and the castor oil acts as a purgative. The author thinks it is an ingenious combination which responds to the various indications in the rational treatment of tape-worm.—*New York Medical Journal*, June 23, 1894.

PRESCRIPTIONS.

To allay the itching in urticaria:

℞ Hydrarg. perchloridi, gr. iss;
Chloroformi, ♏xx;
Glycerini, ℥ii;
Aq. rosæ, ad ℥viii. M.
To be dabbed on the affected parts.

Carbolized Collodion.—The following formula is a good one for the preparation of "carbolized collodion:"

℞ Acidi carbolici,
Ol. ricini, of each, ℥ss;
Collodii, ℥i. M.

For vaginismus:

℞ Iodoformi, gr. xv;
Extracti belladonnæ, gr. viii;
Ol. theobromæ, q. s. M.
For one suppository; to be used at bedtime.

Useful in alopecia areata:

℞ Resorcin, ʒiss;
Ol. ricini, ℥iss;
Sp. vin. rectificati, ℥v;
Balsami Peruviani, gr. viii. M.
To be applied locally.

—*Medical Press and Circular*, 1894.

MALARIAL CACHEXIA.

In the *Virginia Medical Monthly* for July, 1894, GUICE publishes a paper on malarial cachexia and its treatment.

It is well usually to commence the treatment of this class of patients by giving 5 grains of quinine three or four times daily for two or three days. This will rid the system of at least a portion of the germs of malaria; and especially is the quinine necessary if there be present at the time paroxysms of fever, to which a great majority of such cases are subject. Quinine will also suspend periodical attacks of neuralgia, and, in fact, any other periodical symptom. Constipation, if present, should be relieved by a simple laxative or purgative, which should be repeated *p. r. n.*

Calomel, which is so constantly and so freely given in this country, is contraindicated in malarial cachexia. It adds to the already debilitated and anæmic condition by diminishing the number of red globules of the blood. It impairs the ozonizing function of this vital fluid, deranges digestion, and impairs nutrition, and

when given to ptyalism, as is so frequently done, it charges the blood with fetid and effete material, destroys the plasticity of the fibrin, and increases the proportion of water. It also stimulates and increases the waste of the tissues and otherwise adds to the burden of an already struggling system, and to this may be added the fact that there is nothing in the pathology of the disease which calls for or indicates the specific action of mercury.

The proper treatment is one that is tonic and sustaining. Such is also the rational treatment, because the general condition is that of anæmia. Whether the disease be in the stage of recent development and marked by only a few recurrences of chills and fever, or of long standing and presenting a condition of profound anæmia, enlarged spleen and liver, sallow complexion, etc., the treatment should be about the same. An excellent combination and one the author has used more frequently and more successfully than any other is the following:

℞ Quiniæ sulphatis, ℈iv;
Ferri sulph. exsic., ʒi;
Acid. arsenosi, gr. ii;
Ext. gentian, q. s. M.
Divide in pill No. 40.
Sig.—1 three times daily after meals.

This prescription may be dispensed either in pill or capsule, at the option of the patient, and should be taken continuously for not less than twenty-eight days. He has found after much experience that failure to continue the treatment, whatever it be, for the above period will commonly result in a return of the original condition, and hence the rule should be rigidly applied in all cases. In severe, protracted, or advanced cases it is well to order 5 grains of quinine, to be taken once daily (morning best) in connection with the above pill for the first ten to fourteen days, after which the pill is continued alone; while this is not essential to success, he has found it useful in securing prompt and rapid improvement in such cases.

2 or 3 grains of ferri pulvis to the pill may be substituted for the dried sulphate with probably as good results in most cases, and $\frac{1}{60}$ grain of strychnine sulphate may be added if indicated or if desired by the prescriber.

Should paroxysms of fever supervene pending the use of the pill, it may be suspended and 5 grains of quinine given three or four times daily for two or three days, after which the pill should be resumed.

Should the patient be unable to swallow a pill or capsule, the following combination will be found very successful:

℞ Quiniæ sulphat., ʒi;
Tinct. ferri chlorid., ℥i;
Potass. chlorat., ʒii;
Syr. zingib., q. s. ad ℥iv. M.
Sig.—Teaspoonful three times daily in water after meals.

Where the poverty of the patient has been such as to prohibit the use of prescriptions costing so much as those above given, he has used with very good success the following:

℞ Tinct. ferri chlorid., ℥iss;
Liquor acidi arsenosi, ʒiiss. M.
Sig.—20 to 25 drops in water three times daily after meals.

One dose of 5 grains of quinine given daily before breakfast will add to the efficacy of the above cheap and simple combination.

Abundant experience with the virulent malaria of the southern Mississippi Valley enables the writer to speak confidently of the value and success of the foregoing treatment in all conditions of chronic malarial poisoning. In many cases, and especially the more obstinate, the disease may be remedied by the persistent use of arsenic alone (Fowler's solution, 3 to 5 minims), given three times daily after meals. He has also used with admirable success in the more obstinate cases the following:

℞ Acid. nitric., ʒi;
Ferri sulph. (C. P.), ℥i. M.

When effervescence ceases add,—

℞ Aquæ, ℥xii;
Quiniæ sulphat., ʒi;
Strychniæ sulph., gr. iss;
Potass. nit., ʒii. M.
Sig.—Tablespoonful in water three times daily after meals.

This is an incompatible prescription, but an excellent tonic in conditions of anæmia. It is intensely bitter, and is for that reason objectionable.

In babes and young children, malarial cachexia will generally yield promptly to 1- or 2-grain doses of ferri et ammoniæ citrat., given three times daily in solution. For this class of patients medicine should be made as palatable and attractive as possible, and with this view he uses the following:

℞ Ferri et ammon. cit., ʒi to ʒii;
Glycerin., ℥ss to ℥i;
Elix. simp., ℥i;
Aquæ, ʒii. M.
Sig.—Teaspoonful *ter in die* after taking food.

1 tablespoonful daily of febriline (2 grains to 1 drachm) may be given in connection with

this prescription for the first week in advanced cases. In the treatment of children, as in adults, the medicine should be continued for twenty-eight days. This rule is strenuously advocated for the excellent reason that very many patients will relapse if the treatment be continued for a shorter period.

The timely treatment of malarial cachexia is a sure prophylactic in the great majority of cases of that dread disease—malarial hæmaturia—which has in the last quarter of a century destroyed so many young and valuable lives. This latter disease, as is well known, develops in nearly all instances in persons who are worn down by malarial cachexia, and hence the number of cases would be enormously lessened by simply relieving the cachexia and thus robbing hæmaturia of its preferred and easy victims.

HEMIPLEGIA DURING PERFLATION OF AN EMPYEMA CAVITY.

It seems to be necessary to apologize for publishing a case in which the accident of hemiplegia occurred during the treatment of empyema, since that complication has been almost entirely relegated to the past by the abandonment of the practice of "washing out." Cases, however, arise from time to time in which the offensive character of the discharge necessitates the adoption of irrigation with an antiseptic fluid, and the following case is brought forward because it seems to suggest that the accident may easily be prevented. Here hemiplegia occurred, not during washing out, but while air laden with eucalyptus vapor was being puffed in. Fluid used for irrigation of the cavity is always warm, while the air in this case was at the temperature of the surrounding atmosphere, or possibly colder, since in taking up eucalyptus vapor it may have become chilled. This suggests that the application of cold to the pleural surface may be a factor in the production of the accident, and that in those cases that have occurred during washing out, the temperature of the fluid may have been allowed to fall below that of the body.

A man, fifty-five years of age, was admitted into the infirmary on January 13, 1891, with signs of fluid in the left side of the chest. On the 15th he was aspirated, and the cavity was found to contain pus. On February 3 the empyema was opened in the ninth space in the post-axillary line. On the 23d the cavity was washed out.(it had been washed out on several previous occasions), and afterwards some air laden with eucalyptus vapor was puffed in. The patient suddenly complained of giddiness, turned very pale, and fell back apparently dead. Pulse weak and very irregular. After artificial respiration had been kept up for a few minutes respiration recommenced and the pulse became good. He was semi-conscious for two hours after. 24th.—This morning the right arm and to a less extent the right leg are paralyzed. He is from time to time fairly sensible. He says, "Oh, dear!" The right arm becomes rigid when the patient tries to raise himself with the left. He is very restless and irritable; no facial paralysis can be made out; the pupils are equal, medium, and sluggish; the knee-jerks are brisk, the right being more so than the left; the plantar reflexes are not well marked; there is no clonus; the patient sleeps with the right eye open. 25th.—The patient speaks fairly well, using numerous words; he still seems dazed. His sister-in-law came here to see him yesterday, but he did not recognize her, though he could say a few words. He has regained considerable power in arm and leg. 26th.—The patient now seems almost as well as before the attack, although he is slightly dazed; he says that he remembers nothing; he moves the right hand and arm well, but still weak. The patient perfectly recovered, and left the infirmary with the wound healed in the course of a few weeks.

The author suggests that chilling of the pleural surface may possibly be a factor in the causation of hemiplegia. Before giving reasons for that supposition the various views of the pathology of the accident may be referred to. When the accident first attracted attention the detachment of a venous thrombus during the washing out of the empyema cavity was supposed to occasion embolism of a cerebral artery and give rise to the alarming symptoms and hemiplegia. In fatal cases, however, no such embolus was found. It was then suggested that the hemiplegia was reflex, due to some obscure inhibition of the action of one-half of the cerebrum. Against that view it was urged that the pleural surface could not be sensitive, since it had become transformed into the wall of an abscess cavity. M. Desplats, after reporting a case, suggested that, while in some the symptoms might be reflex, in others they were probably due to the toxic effect of the absorbed antiseptic, while in still others they were merely the manifestation of epilepsy or of uræmia. If epilepsy explains any case, they must be few in number, since, although epileptiform convulsions may be the main feature of this accident, the termination generally, either in death or in hemiplegia, distinguishes them from the convulsions of that disease. Uræmia

is more closely simulated; both hemiplegia and epileptiform convulsions may be present, the latter being sometimes followed by rapid death. But in the accident under notice failure of the pulse and respiration at the onset are marked features and give evidence that although there is some resemblance to uræmia, there are small, yet obvious, differences. The invariable suddenness of onset during the washing out is also against the acceptance of uræmia as the explanation.

It can hardly be supposed that the antiseptic is responsible for the hemiplegia, since that used had varied, and poisoning by the commonest antiseptics does not give rise to such symptoms; nor is it likely that these poisons would act mainly upon one cerebral hemisphere. It has been already mentioned that embolus is negatived as a cause for hemiplegia since in fatal cases no emboli have been found. If, therefore, one rejects emboli, epilepsy, uræmia, and poisoning by antiseptics, the only theory left is that the hemiplegia is due to shock. It certainly seems strange that a thickened pleural surface covered with abundant, partially organized, exudation should be able to transmit any nervous impulses to the central nervous system; but although the surface may not be sensitive to ordinary irritation, it cannot be said that a chilling of the wide vascular surface may not be capable of producing some mysterious effect upon the cerebral circulation. In the above case a few cubic centimetres of air laden with eucalyptus vapor had been puffed in when the accident occurred. Mechanical irritation by previous washing out had been harmless. It seems, therefore, reasonable to suppose that the effect of the air was not harmful from direct irritation, but indirectly through the production of cold. Possibly in every case in which the accident has occurred the antiseptic fluid has been allowed to fall below the temperature of the body. This would explain why the accident does not usually occur until the treatment has been carried on for some time. When the treatment is first commenced, more attention would probably be paid to the temperature of the fluid than at some later period in which the patient was becoming convalescent. A case referred to in the *Lancet* tends to support this view of the effect of cold. In that case .8 cubic centimetre of a three-per-cent. solution of peroxide of hydrogen had been injected, when the respiration became oppressed, clonic convulsions occurred in the right arm, the head turned to the left, and the patient died in ten minutes. A solution of peroxide of hydrogen must have been injected cold, and the quantity was too small to have had a mechanical effect. The value of the evidence it affords is, however, somewhat diminished by the fact that the injection was not the first, but the seventh. It must also be admitted that there is one fact that seriously militates against this view of the pathology of the accident. Were the view correct, one would expect the hemiplegia to bear a constant relation to the position of the empyema. Although the hemiplegia is nearly always upon the same side of the body as the empyema, in one case recorded by M. Berbez it was on the opposite side. In the case recorded in this paper the hemiplegia was also, curiously enough, on the opposite side of the body. One is obliged to admit, therefore, that the above view as to the cause of the accident rests upon somewhat insufficient evidence, yet when necessity arises for washing out an empyema cavity it would be well to pay careful attention to the temperature of the fluid.—FISHER, *Lancet*, March 17, 1894.

TREATMENT OF EROSIONS OF THE STOMACH.

EINHORN, of New York, believes that the local treatment of the stomach in the presence of erosions plays a great *rôle*. The astringent effect of nitrate of silver solutions in similar more accessible affections led the writer to apply this substance directly to the inside of the stomach. This can best be achieved by means of the spray. It was on this occasion that he constructed the gastric spray apparatus employed by him.

The treatment is given in the following way: First, the stomach in a fasting condition is washed out with lukewarm water; when all the water has been emptied, the tube is removed from the stomach. The spray apparatus is filled with ten cubic centimetres of a one- to two-per-mille solution of nitrate of silver, the tube end dipped into warm water and inserted into the stomach (length of tubing, fifty centimetres); thereupon the whole, or at least the greater part, of the solution in the bottle is sprayed; the bottle is then opened and the spray-tube removed from the stomach.

In fact, the good result of this method of treatment can frequently be best shown in the affection in question, for after spraying has been done several times the small pieces of gastric mucosa cease to appear. Associated with the objective symptom there appears an amelioration in the subjective feeling of the patient, the pains grow considerably less or entirely disappear, and the strength increases.

He usually combines the nitrate of silver spray treatment with intragastric galvanization, alternately applying the spray or the galvanization. The reason for the use of galvanization in these cases lies in the fact that he had such effective results in two other cases of probable erosions of the stomach, complicated with heart-trouble, by means of galvanization alone. The methodical application of intragastric galvanization combined with the spray seems to increase the curative effect.

As to diet, there is no need for being rigorous in these cases. Frequent meals, avoiding heavy vegetables, salads, and pastries, are all that is ordinarily required.

Cold ablutions, light gymnastics, out-door life, are to be warmly recommended.

Of medicaments, condurango and nux vomica are frequently, and a good, easily assimilated iron preparation always, appropriate.

Although these medicaments may be of value as adjuvants, we should rely mainly upon the local treatment.—*Medical Record*, June 23, 1894.

A CASE OF RUPTURED GASTRIC ULCER SUCCESSFULLY TREATED BY ABDOMINAL SECTION AND SUTURE.

MORSE has recently reported the following interesting case before the Royal Medico-Chirurgical Society of London.

The patient, a young woman, aged twenty, having symptoms of gastric ulcer, was suddenly seized with violent abdominal pain, followed by faintness and vomiting. The pain, which was of a burning character, commenced over the region of the stomach and gradually extended all over the abdomen. Abdominal section was performed nearly five hours after the commencement of the symptoms; the contents of the stomach were found in the peritoneal cavity. The stomach was withdrawn, and a perforation was found on the anterior surface, close to the cardiac orifice. The organ was washed out, and the perforation was closed with Lembert's sutures; the stomach was returned, the peritoneal cavity was washed out, and the wound was united. No food was given by the mouth for sixty hours, and at the end of three weeks the patient was quite well. Mr. Morse had not up to that time seen a record of any other successful case of the kind in England, though cases had been reported by Drs. Penrose and Dickson, also by Mr. Gilord, Mr. Barling, and Mr. Warrington Haward.

In the ensuing discussion, BARWELL said he had taken much interest in this subject and had collected a large number of cases (twenty-five in all), and he had since heard of four others. One of the cases must be excluded from this series, as it was really a case of localized abscess, which was opened and drained. The abscess was no doubt due to the perforation of a gastric ulcer, though the opening into the stomach had already healed at the time of the operation. In one case, reported from abroad, the abdomen was opened from the xiphoid to the umbilicus without finding the perforation; the right rectus was then divided, the lesser omentum scratched through, and a fruitless search was made over the posterior wall of the stomach. The left rectus was then likewise divided by another transverse cut, and an opening as large as a pea was found on the anterior wall of the stomach, near the lesser curvature and the cardiac end. The patient mended slowly, the recovery being jeopardized by subphrenic abscess, localized empyema, and abscess of lung. He thought that certain lessons could be drawn from the recorded cases with regard to matters of detail in the treatment which might lead to success or otherwise. The operation should be performed as soon as possible after the occurrence of the injury. The best position to open the abdomen was some little distance to the left of the middle line, for gastric rupture was commonest nearer the cardiac end. The front wall of the stomach should then be very thoroughly searched, for though ulcer was commonest behind, yet perforation was rarer there, the usual sequence being gradual perforation of the viscus, with formation of abscess. When there was free gas in the peritoneum, a peculiar thrill could be obtained, made up of rapid vibrations, and it was often accompanied by the sudden disappearance of liver dulness. The rupture might easily be concealed by the puckering of the stomach after it had partially emptied itself through the rent. If the operation were performed later, the best guide to the rupture would be the point of chief peritonitis and effusion of lymph. In four cases the site of rupture had been overlooked, being concealed by the exudation. If the perforation could not otherwise be found, the patient might be made to drink coffee or methylene-blue solution, in order that by leakage the place of rupture could be betrayed. He did not agree that it was necessary to cut the ulcers away, for they healed as well if tucked in. The careful washing out of the stomach through the rupture was of great advantage. It was wise to eschew antiseptics in washing out the

peritoneum, for if these solutions were strong enough to be germicidal, they irritated the peritoneum or poisoned the patients, and if they were weak they were futile. He himself had used distilled water for the purpose of flushing out, and the water, if warm, served to abolish the symptoms of collapse; the best temperature was 112° F.

MR. WARRINGTON HAWARD congratulated Mr. Morse on his correct diagnosis and prompt treatment. When a perforation occurred suddenly into the general cavity of the peritoneum, the ulcer would almost certainly be found on the anterior surface of the stomach, those occurring posteriorly mostly forming adhesions. The necessity for prompt action in these cases was great, for the danger became greater the longer the case was left. Not only did the collapse become more profound, but the contents of the stomach were apt to become absorbed by the lymphatics of the diaphragm and, being carried upward, to cause a basal pleurisy or pleuro-pneumonia. Though the symptoms were usually well marked, yet the diagnosis was not always easily made. Immediately symptoms of basal pleurisy or of pleuro-pneumonia occurred, a careful exploration of the pleura should be undertaken. He was still inclined to think that the incision should be made in the middle line, for the perforation might be situated at any point on the anterior surface. If the ulcer were to be closed by suture he saw no gain in a preliminary washing out of the stomach, though he attached great importance to the thorough washing out of the peritoneum. Hot water was possibly the best thing for this, and it might, as had been pointed out, be useful in checking the collapse.

MR. PAGE referred to some cases, of which he gave the following particulars: In his first case the operation was performed forty hours after the perforation had taken place; the opening was firmly closed, but the general invasion of the peritoneal cavity by inflammation rendered cleansing impossible. In the second case the operation was performed eighteen hours after perforation, and he opened the abdomen over the site where the first pain had been felt. The perforated ulcer was close to the cardiac end of the stomach and so far from the surface that he found it practically impossible to close the orifice; the patient lived a few hours only, and afterwards it was found that leakage had taken place. In the third case it was agreed after consultation to defer operation, for there were indications that the peritonitis was purely local. After four days a drainage-tube was passed into a cavity in which there were pus and gastric contents. Afterwards extensive exudation was found between the stomach and the diaphragm, and a second ulcer was found on the very verge of perforation on the posterior wall of the stomach. In a case in which his colleague, Mr. Pepper, had washed out the stomach he had found much difficulty to arise therefrom. He had received from Dr. Maclaren, of Carlisle, particulars of three cases of gastric ulcer treated by laparotomy, with one recovery. In the first case the perforation had occurred rather less than twelve hours previously, and there was much collapse; the patient died three days later from peritonitis. In the second case the perforation had happened nine hours before, and it did well after operation. In the third case the perforation had occurred four hours previously, and death occurred three days later from suppurative peritonitis. Dr. Maclaren attributed the fatal results to imperfect washing out of the peritoneum.—*Lancet*, March 17, 1894.

CRYSTALLINE DEPOSITS IN THE URINE.

Bearing in mind the etiological factors considered above, the treatment required to prevent these crystalline deposits obviously consists in preventing the formation of uric acid and calcic oxalate in the system; and, secondly, in preventing their precipitation in the kidneys. The first result is to be gained by hygienic and dietetic measures, while the second requires medicinal treatment.

The hygienic measures consist of an out-of-door life, as far as practicable, exercise, and baths. The plethoric, high-living, uric-acid victim, with his tissues crowded with waste material, evidently requires all the out-of-door exercise he can stand and warm baths to stimulate the eliminative action of the skin. The other class of debilitated, anæmic, neurasthenic subjects of uric acid or calcic oxalate are equally in need of fresh air to assist their feeble oxidizing powers, but we must be careful not to overtax their weak constitutions with too much exercise and bathing. In the consideration of diet it is especially necessary that digestion should be perfectly performed, failure in this respect causing more defective metabolism than could possibly arise from a little more or a little less of some particular article of food.

Most persons are able to digest lean meat more easily than starchy, saccharine, or fatty substances. In the latter three classes of foods, if digestion is slow, fermentation is sure to oc-

cur and the resulting acids are taken into the blood, thus lessening its alkalinity and solvent power and interfering with all the metabolic processes. In the majority of cases, therefore, a diet containing a considerable proportion of albuminous material, supplemented by succulent vegetables, will be more easily digested than one in which the starchy and saccharine elements predominate. The diet must be carefully suited to each individual case. Stimulants of all kinds must be avoided. In cases of oxaluria we must avoid the ingestion of vegetable substances containing oxalic acid, such as tomatoes, sorrel, rhubarb, onions, turnips, cauliflower, and asparagus. The free use of pure water and of milk is extremely important. As we have already seen, the urine containing crystalline deposits is almost always concentrated and highly acid. Water at the same time dilutes the urine and renders it relatively less acid.

Drinking hot water at bedtime acts very beneficially as a diuretic and gives a copious flow of urine in the morning,—a point of importance, as Roberts and others have shown that uric acid is largely precipitated in the urine in the early morning hours.

The medicinal treatment to prevent the formation of crystalline deposits of uric acid differs from that required in oxaluria and will be considered separately.

We can, as pointed out by Roberts in his recent Croomian lectures, effectually prevent by medicinal treatment the occurrence of those conditions of the urine under which alone the formation of uric-acid crystals is possible. The immediate determining cause of the precipitation is excessive acidity of the urine, and the essential indication of preventive treatment is to diminish the acidity.

Chemically, it is impossible for uric acid to be deposited from an alkaline urine and not at all likely in a neutral or feebly acid urine. A study of the normal variation of the urine at different periods of the day and night leads to the inference that the liability to uric-acid gravel rises to a dangerous intensity only during certain limited portions of the twenty-four hours. The character of the urine has been shown by Roberts to be most affected by the digestion of food, by prolonged fasting, and by sleep.

A meal, whether composed of ordinary mixed food, or of purely animal, or purely vegetable substances, produces two constant effects. It lowers the acidity of the urine and increases its volume. Conversely, prolonged fasting raises the acidity and diminishes the flow of urine. During the hours of sleep, which are also hours of fasting, the acidity of the urine reaches its highest point and the flow of urine reaches its lowest point. The proportion of uric acid in the urine is highest during the time of sleep, but the hourly excretion is highest during the hours following a meal.

Obviously, therefore, the period when there is most risk of precipitation in the kidneys is during the time of sleep, and especially in the early morning, during the two or three hours before breakfast. In sleep, also, the horizontal position and the bodily repose make the urinary stream more sluggish and predispose to crystalline precipitation. On the other hand, during the day and the waking hours the recurrence of the meals keeps the urine at a low degree of acidity, or even renders it for a time neutral or alkaline, while the renal stream is comparatively full and rapid, and its descent from the kidneys is favored by the force of gravity. It is, therefore, only during the critical period of the latter part of the night that medicinal treatment is required. In the milder cases a single full dose of one of the alkalies taken at bedtime suffices to prevent the formation of uric-acid concretions. For this purpose the citrate of potassium is, perhaps, the best preparation to employ. The dose for an adult is from 40 to 60 grains, dissolved in a few ounces of water. In severer cases a second but smaller dose should be taken during the night.

Haig has shown also that salicylate of sodium has a decided influence in increasing the excretion of uric acid. Phosphate of sodium is at the same time a good alkalizing and laxative agent; it is also, as we have seen above, the principal natural solvent of uric acid in the urine. Roberts also points out that salines exercise a protective influence against the precipitation of uric acid. People who take very large quantities of common salt with their food experience a practical immunity from stone. On the other hand, it is very frequent among the children of the poor, who are fed very largely on farinaceous articles, and among the natives of India, who feed on rice. Acids and iron interfere with the solubility of uric acid and with its elimination.

A fact of great practical importance—mentioned by Haig and quoted by Osler—is that "lithia, although a beautiful solvent of uric acid in a test-tube, yet when given by mouth never reaches the uric acid at all, because it at once forms an insoluble compound with the phosphate of sodium in the blood, thus removing from that fluid one of the natural solvents of uric acid and diminishing its power

of holding uric acid in solution." Lithia waters, then, have been found useful, because the beneficial effect of the water itself exceeds the harmful effect of the lithia contained in it. This is directly opposed to the prevalent idea of the value of the lithia compounds in the uric-acid diathesis.

For a plethoric habit, the free use of alkaline mineral waters, such as Carlsbad and Vichy, is important.

In the treatment of oxaluria much less is accomplished by chemical agents. The usual tonics suitable for cases of debility are often required. Dilute mineral acids, especially nitro-muriatic acid, are considered by many as almost specifics. Their beneficial action is probably accounted for by their power to correct digestive disturbances. Phosphate and chloride of sodium have a distinct solvent action on oxalate of lime. It has also seemed to me, in a few cases, that sodium salicylate has caused the crystals to disappear.

The treatment of calculus in the kidney will not be considered here, as the so-called "solvent" remedies have been found entirely unreliable, and the final resort must be to surgical methods.—*Boston Medical and Surgical Journal*, June 7, 1894.

CASE OF URTICARIA PRODUCED BY SANTONIN.

The following case of urticaria produced by santonin, which has lately come under the reporter's notice, presents interesting features:

A. B., a child, seven years of age, was brought to the author April 21, 1894, suffering from thread-worms, which her mother said had been present for some three years. She had been under treatment once before for this cause, but had not taken santonin on that occasion. There was nothing remarkable in the child's appearance, except that she was rather pale and flabby and had a slight cough. 3-grain santonin powders were ordered, to be taken fasting on alternate mornings for three days, preceded on the previous night by castor oil and followed by a similar dose. She had a dose of castor oil on the night of April 21, and her first powder at 7 A.M. on the 22d. On this occasion the only sign of any eruption was a red œdematous patch the size of a five-shilling piece on the left forearm, which was rather irritable, and was ascribed by her mother to an insect-bite. On the 24th she had her second powder at 7 A.M. By 8 A.M. the face was red and puffy, and in a short time the whole body and the limbs were œdematous and covered with a typical urticarial eruption, consisting of large white wheals surrounded by a broad red areola. There was some irritation, but it was not at all intense. There was no constitutional disturbance, and by 11 A.M. the rash had almost entirely disappeared. To verify the cause of the eruption the child was given the last powder at 7.20 A.M. on the following morning, and in an hour a similar rash, if anything more intense, had appeared. The bowels were freely opened about 9 A.M., and the rash had entirely gone by 10 A.M.

There do not appear to be many cases of this interesting eruption recorded. Sievking mentions a similar example, which is the only one referred to by Crocker, and Morrow, in his interesting work on drug eruptions, mentions the above case and a number of others recorded by Hubert, in which the administration of santonate of sodium was followed by an eruption of pin-sized vesicles in the trunk and limbs. Underwood also relates a case in which the taking of 5 grains of santonin in an adult was followed by a morbilloid cuticular efflorescence and a punctiform rash on the buccal and pharyngeal mucous membrane. It appears, therefore, that the santonin idiosyncrasy is rare, and that the eruption may vary in character, is accompanied by little or no constitutional disturbance, and rapidly disappears, leaving no ill effects.—G. STEWART ABRAM, *Lancet*, May 12, 1894.

HOW TO GIVE PILLS TO CHILDREN.

BOND, in the *Virginia Medical Monthly* for July, 1894, states that the inability of smaller children to swallow pills without chewing them up renders the administration of certain ill-tasting drugs to such patients very difficult, and really in many cases becomes a very serious hinderance to necessary treatment.

This fact is especially striking when we consider the treatment of malarial fevers in small children by means of quinine. The hypodermic method and administration by the rectum are too unhandy for general use. Application through the unbroken skin is too uncertain and inconvenient. The drug must be given by the mouth in nearly all cases, or not used at all. Solutions of quinine in acidulated water are, indeed, most efficacious in the cure of the disease, but the philosophy of the Stoics has not yet become a fad among the grown folks of America, and we need not expect children to practise its teachings. Quinine may be dissolved in tincture of iron, and, when syrup is added, the combination of nasty things

will sometimes be taken without much objection by older children; but iron is often unnecessary or contraindicated in these cases.

The administration of quinine in bulky mixtures of substances which cover the taste of the drug is open to grave objections, for it may well be questioned whether the large quantities of licorice, yerba santa, chocolate, etc., are not positively injurious in many cases to the already enfeebled stomachs of young patients, or even of older ones, ill with severe malarial diseases.

Tablets of chocolate containing definite quantities of tannate of quinine have found some favor with physicians and are greatly enjoyed by certain children. They, however, are open to the objection that tannate of quinine is not a sufficiently active preparation of the drug to warrant reliance upon it in severe cases.

With some confidence of receiving an attentive hearing he recommends a method he has found efficacious in his own practice. The quinine sulphate is ordered in pill form with dilute acid, generally aromatic sulphuric acid, and the mother of the patient is directed to break up each pill and mix it with a little brown sugar. This is put upon the tongue dry, and a mouthful of water carries it into the stomach. Sometimes sweet chocolate is broken up and used instead of brown sugar, or it is taken into the mouth before and after the bits of quinine pill and sugar. A stick of licorice root may be used in the same way. In this way a very little of the masking substance suffices at each dose. The pill of quinine sulphate made with aromatic sulphuric acid is not only very soluble, but also in its smallest possible bulk.

It will readily be seen that by means of the pill broken with brown sugar or other masking agent, any drug or mixture of drugs which can be made into pilular form may be administered to children with facility. Since it occurred to the author to try this method he has never felt the need of mask mixtures for such prescriptions. Moreover, the mothers of the children take kindly to the plan.

INFANTILE THERAPEUTICS.

LUZET (*Arch. Gén. de Méd.*, June 16, 1874) gives a critical review based on the work of Legendre and Broca. The special points really consist in the phases of development in the infant, in the special feature of disease which here proceeds rapidly towards aggravation or recovery, and in the physiological peculiarities of more active metabolism, of more rapid absorption and circulation, of intact emunctories, and of a more impressionable nervous system. In regard to feeding, the regular increase in weight must be relied upon. A tuberculous nurse must not be employed, for if bacilli do not pass out with the milk, toxins can; in addition, the milk is less rich in fat and casein. Overfeeding the nurse must be avoided. Of course, artificial feeding is only a method of necessity. The milk should be sterilized by means of steam under pressure. The therapeutic bath is used to reduce temperature; the bath is then gradually cooled down from 2° F. below the child's temperature to 30° F.; it is useful in enteric fever, severe scarlet fever, and cerebral rheumatism. The bath with increasing temperature is of value in collapse, such as occurs in diarrhœa; it may also be a vehicle for certain medicaments. More strictly therapeutic measures are then discussed in the following order:

1. Evacuating medication. The stomach-tube is very useful, as well as intestinal injections and emetics. Apomorphine is dangerous.

2. Promotion of excretions. The best diuretic is water. Large rectal injections of cold water constitute a good method of inducing diuresis. In uræmia, icterus, and all intoxications large injections are useful. Cold baths are also of service in increasing renal excretion. Digitalis is well borne by children. Diaphoresis is best obtained by physical agents,—heat, wet sheets, hot drinks. Diuresis is more efficient than diaphoresis.

3. Sleep should never be interrupted in disease, with very few exceptions. It may at times be necessary to induce sleep. This may sometimes be done by removing something which interferes with sleep. Physical agents are again the best means, such as tepid baths, etc. Opium requires caution; chloral is useful; bromides and antipyrin may be of service.

4. Fever is controlled by external agents,—baths, etc. Quinine, antipyrin, and sodium salicylate may be useful adjuvants.

5. Food is the best tonic. Alcohol is the best stimulant.

6. Antiseptic medication plays a very important part in infantile therapeutics. Carbolic acid in any form must be avoided. The mouth should be cleansed with alkaline lotions. Glycerin is a good non-fermentable medium. Antisepsis of the stomach may be procured by washing it out, and, together with the intestine, by the use of bismuth, salicylate, salol, etc. Calomel is a powerful intestinal antiseptic.

Antisepsis of the large intestine is obtained by means of irrigations containing naphthol, etc. It is indicated in typhlitis, appendicitis, membranous colitis, etc.—*British Medical Journal*, June 30, 1894.

PARA- AND ORTHOCHLORPHENOL IN TUBERCULOUS AND OTHER DISEASES.

N. SIMANOFFSKI (*Vratch*, No. 8, 1894) has used solutions of monochlorphenol in glycerin in the strength of five per cent., ten per cent., and twenty per cent., and points out as special features of these very powerful disinfectants that they do not irritate the mucous membrane, even if applied in a twenty-per-cent. solution, that they form no stable combination with the tissue albumins, and that they are therefore able to penetrate into the depth of the diseased organ. The tuberculous cases treated were mostly very advanced and serious affections of the throat with impairment of voice and difficulty in swallowing. In one case there was, besides these symptoms, a tuberculous ulcer at the root of the tongue; in another a similar ulcer on the whole posterior wall of the pharynx and part of the nasopharyngeal region. All cases, without exception, even including the last one, in which there was a very advanced affection of the lung, improved quickly under the local treatment with monochlorphenols; the ulcers became clean and showed a tendency to heal, and all the accompanying symptoms disappeared. Equally good results were obtained in chronic thickening and hyperplasia of the mucous membranes, which disappeared after a few applications of the same solutions. Simanoffski is of opinion that the monochlorphenols will find a large field of application in diphtheria, etc., and he unhesitatingly recommends them in laryngological practice in preference to iodoform, pyoktanin, menthol, etc., especially as they also possess anæsthetic properties. —*British Medical Journal*, June 30, 1894.

TREATMENT OF NIGHT-SWEATS OF PHTHISIS.

CONKLING writes a valuable paper on this topic. As the result of wide experience he finds aromatic sulphuric acid is at times a useful remedy. It possesses some marked disadvantages: it could not be used for any length of time; it frequently produced constipation; and it interfered, after a time, with some special lines of treatment devoted to the pulmonary lesion.

The remedy was given in sweetened water; or, if not objectionable to the patient, in water alone. The dose used was 10 to 15 minims at bedtime (one dose); or it was given in three doses, in 7 to 10 minims each dose. The first of these was given in the late afternoon, the second in the early evening, and the third at bedtime. The latter method was found the better.

This remedy diminished the sweating in all the administrations, but stopped it in less than half. But it never stopped the sweating at once; diminution always came before cessation.

Camphoric acid was found to be very uncertain in its action. Its successes and failures did not seem to bear any relation to particular cases. It sometimes would succeed where before it had failed. It had no after-effects.

The dose given was 30 grains in water at bedtime.

This remedy had a large number of failures. It diminished the sweating in a very few, and was successful in a little over one-third of the administrations; but even in some of these the perfect cutaneous dryness of some other remedies was not noted.

Chloralamid was found to be a very important and valuable remedy. Mention of its use as an anidrotic has appeared in print several times. The author's own knowledge of its power in this direction was obtained by accident soon after its introduction into the American market. The drug was being used in tubercular patients as an hypnotic. The patients, after giving their answer as to the effect of the "sleeping medicine," would frequently say that the sweating was less or absent. This was repeated so many times that finally the drug was tested. It was found to produce sleep, stop cough, and stop sweating. It had no disadvantages, either producing the desired result or being inert.

Chloralamid was given in one dose of 30 or 35 grains, at bedtime, either in powder or in the form of Schering's elixir.

The remedy diminished the sweating in less than one-fourth of the administrations, failed in about the same number, and succeeded in over one-half. Even in severe cases the first administration was frequently successful.

Muscarine was the least successful of all the remedies; it had no after-effects. Indeed, judging from the action of the chief members of its family, one would expect rather some favorable vascular or nervous action.

It was given in pill form at bedtime, in doses of $\frac{1}{60}$ grain.

This remedy stopped the sweating in only twenty per cent. of the administrations, failed absolutely in forty per cent., and diminished it only slightly in the remainder.

The writer's experience with oxide of zinc showed that there was no particular idiosyncrasy required on the patient's part to produce the good results. It was also interesting to note that the element of time was not needed. It was not necessary to use it in repeated doses to produce the effect desired; in many cases the first administration would stop the sweating. But if the first few doses were not successful, the latter ones seldom were. Another feature in this drug was that, when other remedies had failed, the first dose of the oxide of zinc would be frequently successful; it had no after-effects.

It was given in pill form at bedtime in doses of 2½ grains.

This remedy stopped the sweating in two-thirds of the administrations; in the others it somewhat reduced it or failed entirely.

Agaricin was the most successful of all the drugs; it produced most excellent results in young subjects. Under its use the skin remained in a dry condition, without suspicion of any kind of cutaneous activity. It was very successful in cases where, during its use, the sweating had disappeared, and had returned after the drug had been discontinued for a time. Repetition did not weaken its power. Of all the remedies, it acted best in the first few administrations. Subsequent ones sometimes failed. It can be used for any length of time and has no disadvantages.

Agaricin was given in pill form, $\frac{1}{12}$ grain; one pill at bedtime, or a pill late in the afternoon, and a second in four or five hours.

This remedy diminished the sweating in one-eighth of the administrations, stopped it in three-fourths, and failed in the remainder.

The study of cases has shown that atropine and belladonna are not the best anidrotics; they are frequently used in a routine manner; in these cases some difference in their action was noticed. Atropine is a powerful heart drug, and acts on that cardiac nerve the branches of which it is not always best to stimulate in pulmonary tuberculosis; it has after-effects. Restlessness, insomnia, disturbing dreams, and modifications of secretion were noted. Even the good effects of checked perspiration were sometimes counterbalanced by these disadvantages.

It was given in tablet or in solution, in doses of $\frac{1}{60}$ grain or less.

This remedy diminished or stopped the sweating in over two-thirds of the administrations.

Tincture of belladonna possesses some of the disadvantages of atropine; delirium was caused by it (idiosyncratic). The distressing symptoms of laryngeal tuberculosis were increased by it. Diarrhœa was increased where intestinal ulceration accompanied the throat lesion.

The dose used was 7 or 10 minims, commencing in the afternoon and giving two or three doses.

This remedy stopped the sweating in seventy per cent. of the administrations, diminished it in twenty per cent., and failed in ten per cent.

The above brief report deals with some of the points recorded during the treatment of the cases. The smallest possible dose was always used. At present with other remedies the same line of investigation is adopted. But with the above, if the first few administrations do not stop the sweating, another drug in the list is at once tried. Agaricin has given the best results; it must be of the purest quality.—*Brooklyn Medical Journal*, July, 1894.

THIOL IN ERYSIPELAS.

Following Ridder's recommendation, N. K. RUDNEFF (*Meditzinskoie Obozrenie*, No. 13, 1893) tried thiol, in the form of a twenty- to forty-per-cent. aqueous solution, in fifteen cases of erysipelas,—fourteen of the face and one of the leg; all in soldiers. The affected regions, as well as an adjacent healthy zone (about two fingers'-breadths wide) were painted five times daily until the appearance of defervescence, and even, though less frequently, for one or two days more. As adjuvants, he employed (*a*) calomel, 10 grains, internally, just after admission; (*b*) sulphate of quinine, 10 grains twice daily (only when high fever is present); (*c*) camphor, 10 or 15 grains a day, internally, in the shape of emulsion (as recommended by Pirogoff). (See *Provincial Medical Journal*, February, 1891.) In three cases the disease was cut short within twenty-four hours; in eight others, treated like the preceding with a forty-per-cent. solution of thiol, the patients were practically cured in from two to four days; in four earlier cases, in which a twenty-per-cent. solution was applied, there occurred relapses, the disease permanently subsiding after a subsequent application of the stronger solution. On the whole, Rudneff is satisfied with thiol, its advantages including a complete absence of odor and of toxic and irritant properties. The disadvantages are limited to its staining linen, inducing an intense blackish

discoloration of the skin, and being rather expensive. The latter circumstance prevents a routine thiol treatment of erysipelas in hospitals. The author himself has recourse to thiol only in cases in which a corrosive-sublimate treatment (painting with a 1 to 1000 or 500 aqueous solution) fails to cut short the disease. To judge from Rudneff's sixty cases treated with the bichloride, the latter represents the most efficacious remedy for erysipelas after thiol. —*British Medical Journal*, June 30, 1894.

PIPERAZIN AS A URIC-ACID SOLVENT.

Dr. K. Bohland (*Therapeutische Monatshefte*, May, 1894) has sought a patient who persistently exhibited uric acid as a sediment, in order to test upon him the solvent powers of piperazin. He found such a one in a leukæmic man, whose ratio of white to red blood-cells was as 1 to 3. His urine showed for months a persistent considerable uric-acid sediment.

Piperazin did not change the daily quantity of urine passed, but perhaps slightly lessened its acidity. The quantity of uric acid excreted in twenty-four hours remained the same during the piperazin treatment as it was during the administration of bicarbonate of potassium or when no uric-acid solvent was administered. This result agrees with those of Biesenthal and Schmidt, Levison, Dapper, and others.

Bohland reviews the whole subject at some length, and concludes that the treatment of uric-acid concretions in the kidneys and bladder, in the uric-acid diathesis, with piperazin, is entirely without favorable prospect. Existing concretions can neither be dissolved nor can their enlargement be checked by it.

IZAL.

N. A. Blagoveshtchensky, of Moscow (*Vratch*, No. 5, 1894), states that his experiments fully support Klein's high opinion of the antiseptic properties of izal. (See *British Medical Journal*, October 7, 1893.) A three-per-cent. aqueous emulsion destroys the cholera vibrio in fifteen minutes, and a five-per-cent. emulsion in two minutes. Eberth's typhoid bacillus is killed by a three- or five-per-cent. mixture in three minutes, while pyogenic microbes lose their vitality after a few minutes' contact with a two-per-cent. emulsion. Anthrax bacilli resist a one- to five-per-cent. mixture, but perish fairly quickly when treated with a ten-per-cent. mixture. Dressing and suture materials and hands infected with pyogenic streptococci and staphylococci can be sterilized with izal emulsions in a satisfactory manner. The author declares that "even very strong emulsions of the substance are absolutely harmless." Referring to this paper, P. I. Diakonoff, of Moscow, points out (*Vratch*, No. 5, 1894) that commercial specimens of izal are found to vary in their chemical composition, while another disadvantage of the new disinfectant consists in its being non-transparent.—*British Medical Journal*, June 30, 1894.

TREATMENT OF DIABETES WITH FLUID EXTRACT OF JAMBUL E CORTICE.

Dr. Lenné (*Therapeutische Monatshefte*, May, 1894), who had previously reported encouraging results from the use of powder prepared from the fruit of *Syzygium Jambolanum*, has now tried the fluid extract of the bark, according to the method proposed by Vix. 15 grains were given in water three times a day from one to two hours after meals.

On February 14 to 15 the patient passed 4250 cubic centimetres urine, specific gravity 1034, containing a trace of albumin; 5.1 per cent. sugar (216.75 grammes); 3.1 per cent. urea (131.75 grammes); large amount of acetic acid.

Under treatment the patient's weight increased from 43.950 kilogrammes to 45.300 kilogrammes on March 17. The volume of urine at that time was 3000 cubic centimetres; the specific gravity, 1031; the percentage of sugar, 3.6 (108 grammes); the percentage of urea, 2.6 (78 grammes). The diminution in the amount of sugar was, however, not constant, reaching as high as 5.3 per cent. on February 22, and again 4.5 per cent. on March 16. Lenné concludes justly that not the slightest influence of the agent upon metabolism can be recognized. For his part, he thinks that the fluid extract from the bark exerts just as little influence upon the sugar-excreting process of diabetes as does the powdered fruit.

THE INFLUENCE OF SUGAR AND TOBACCO ON MUSCULAR EFFORT.

In 1892 an important series of experiments were undertaken by Dr. Warren Lombard upon the influence of tobacco on muscular effort. The same subject has been investigated by Dr. Vaughan Harley, and the results of his observations are recorded in the first part of the *Journal of Physiology* for the present year. Dr. Vaughan Harley agrees with Dr. Lombard in considering that the amount of work done by the same set of muscles at different times

of the day undergoes periodical variation; so we may accept as a fact that there is a diurnal rise and fall in the power of doing voluntary muscular work, in the same way as there is a diurnal rise and fall in bodily temperature and pulse. It is remarkable, however, that instead of the greatest amount of work being done, as might have been expected, on rising in the morning after a good night's rest, it is found that at 9 A.M. the smallest amount of work is accomplished, the powers of doing muscular work in Dr. Harley's case increasing each hour up to 11 A.M. Immediately after lunch there is a marked rise, followed an hour later by a fall; while again an hour later, or about 3 P.M., the amount of work accomplished reaches its maximum. Then, from some unexplained cause, there is a notable fall at 4 P.M., which is succeeded by a rise at 5 P.M., after which a progressive fall takes place during each successive hour until dinner. Even during a prolonged fast more work was capable of being executed from 11.30 A.M. to 4.30 P.M. than at 9 A.M. Dr. Harley admits, however, that further experiments are required to determine this point satisfactorily. It was found in his experiments on the muscles of the middle finger, that, in corroboration of a well-known physiological fact, regular exercise caused increase in the size of the muscles brought into play, and at the same time up to a certain point rendered them capable of performing more work. Sugar, taken internally, proved to be a muscular food; since, when taken on an empty stomach, there was on that day an increase of 25.6 per cent. in the work done by the left middle finger, while the right middle finger showed an increase of no less than 32.6 per cent. Dr. Harley varied the experiment of administering sugar in many different ways, but always with the same result: the vigor of the muscles was always augmented. The influence of tobacco was not so marked in Dr. Harley's experiments as in those of Dr. Lombard. Dr. Harley considers that moderate smoking, in one accustomed to it, neither increases the amount of work nor retards the approach of fatigue. It perhaps slightly diminishes muscular power and hastens the onset of fatigue. Dr. Lombard holds that the use of tobacco has a powerful influence in this direction. Such experiments as these, even when no absolutely definite result is arrived at, are of importance, and if carried out with due precaution against error, in a large number of men, would undoubtedly constitute the most satisfactory basis on which a sound system of training should be carried out. —*Lancet*, May 12, 1894.

VALUE OF OPIUM IN THE LARYNGEAL STENOSES OF CHILDREN.

DR. CARL STERN (*Therapeutische Monatshefte*, May, 1894) recalls the well-known fact that the difficulty in breathing in stenosis of the larynx in children is greatly aggravated by sleeplessness and fright. For this reason he has been led to treat these cases with opium, and his results have been so gratifying that he believes the remedy should receive more extensive employment. He uses it in cases—whether in diphtheria or without existing throat-affection—in which the hoarseness, the barking cough, the stridor, the cyanosis, and finally the sucking in of the xiphoid process and lateral portions of the thorax point unmistakably to stenosis of the larynx. He reports several cases in which the use of opium averted an apparently necessary tracheotomy.

Stern gives from 2 to 5 drops of the tincture of opium, according to the age of the child and the intensity of the symptoms, the dose being renewed according to the result obtained. For the most part he gives a child a year old 3 drops in a teaspoonful of sweetened water. If no result is obtained, after half an hour two drops more are given. If the symptoms become more severe, the propriety of further medication or tracheotomy must be considered.

A CASE OF OBSTINATE MEMBRANOUS ENTERITIS.

La Presse Médicale for May 19 gives the following treatment, which was successfully used in the case of a young woman: 1. Every morning an energetic general friction with a glove saturated with oil of turpentine. 2. Twice a week a hot bath in which a pound of sea salt and nine ounces and a half of sodium carbonate have been dissolved. 3. Each morning, taken slowly in a recumbent posture, an enema, as hot as possible, of nine ounces and a half of boiled water in which half a drachm of borax has been dissolved. 4. Every day, before the mid-day meal, nine grains of quinine sulphate. 5. The exclusive use of beer, milk, and Evian water.—*New York Medical Journal*, June 23, 1894.

A NOTE ON THE THERAPEUTICS OF DIURETIN.

MCPHEDRAN contributes the following note on this subject to the *Canadian Practitioner* of June, 1894:

It would seem probable that diuretin is effective only within a very narrow range of morbid condition; that when the heart has failed be-

yond a certain degree, it will not respond to the stimulus of diuretin. This seems to be true, at all events, in my own cases, in all of which its use has been temporarily more or less effective, but only temporarily; as recurrence of the dropsy and cardiac failure was little, if at all, benefited by a repetition of the drug. Diuretin is, unfortunately, a patent remedy. Its composition is known, but the process of manufacture is secret. The salicylate of theobromine and sodium is composed of the same ingredients, but is much less agreeable to take, and its effect, so far as the writer has tried, is not so satisfactory, possibly from its being less soluble. In some cases diuretin causes headache, nausea, and a feeling of depression, probably due to the salicylic acid in its composition.

In concluding, the writer states that while diuretin is not a reliable remedy, yet in suitable cases its beneficial effects are so decided as to render it worthy a trial in those distressing cases in which the heart is failing and dropsy increasing. Even if its good effects are only temporary, they are in some cases so satisfactory that the respite given amply repays its administration. Most drugs are temporary in their effects, and we do not refrain from their use on that account. It is probable that it will be found most useful in chronic diseases of the heart-muscle, with disease of the kidney, as in arterio-capillary fibrosis; less so in purely renal cases. It may sometimes prove useful also in valvular disease with ruptured compensation. In ascites from hepatic affections and in pleural effusions it will probably have no effect.

Like all patented preparations, diuretin is unnecessarily expensive, about twice the price of the salicylate of theobromine and sodium. It is to be hoped that an equally useful preparation without the patent may soon be placed within our reach.

CHLORALOSE.

CAPPELLETTI (*Mem. dell' Acad. delle Scienze Med. in Ferrara*, lxvi., No. 4) gives the results of experiments with chloralose. These are as follows:

General Action.—In frogs, small doses increase the reflex excitability. Medium doses cause diminution of voluntary movement, the power to perform which disappears after an amount varying between five and ten milligrammes has been given. In mice, a dose of 10 centigrammes per kilogramme produces exaggeration of reflexes, lessens sensibility to pain, and abolishes the power to perform voluntary movement; tonic and clonic convulsions are also produced. Smaller doses produce similar but less marked symptoms. In rabbits, chloralose produces first a stage of excitement, which gives place to sleep, with a diminution of voluntary movements and exaggeration of superficial reflexes. Convulsions are seen similar to those appearing in the rat. In dogs, sleep is preceded by a period of excitement, during which the animal staggers about and is insensible to his surroundings. The reflexes are exaggerated and the sense of pain is abolished. When the sleep is not profound, convulsions are a prominent symptom. In dogs, a dose of 15 centigrammes per kilogramme is enough to induce sleep. In frogs, the frequency and force of the heart-beats are not altered by small doses; with large ones the beat becomes slower and less powerful. In rabbits and dogs, the carotid pressure is not affected by small or medium doses, and it is only slightly lowered by large ones; the heart-beats also are practically unaffected; the respiration is slowed, and in the case of large doses its rhythm is somewhat altered. In rabbits and dogs, the temperature is lowered often to a marked extent.

Action on Man.—The action of the drug was tested only on asylum patients suffering from insomnia, the dose given at the commencement being about 3 grains. The sleep produced was, as a rule, calm and uncomplicated, the dose necessary varying according to the patient. In cases of slight insomnia 3 to 6 grains are sufficient, but in severe insomnia 12 to 18 grains may be necessary. Sleep came on in about half an hour after taking the drug, and was preceded by a period of pleasant drowsiness; hysterical patients were found particularly susceptible. The smallest doses mentioned produced a sleep of six to seven hours; large ones, on the other hand, often produced convulsive attacks, without sleep. As an hypnotic, chloralose is particularly efficacious if given in the evening.

Action on Reflexes, Tactile Sensibility, Pulse, Respiration, and Temperature.—During the sleep the reflexes are generally wanting, but in certain cases the contrary is seen. The appreciation of tactile and painful sensation remains unaltered, as do the pulse, respiration, and temperature. On the disease producing the insomnia, chloralose does not, as a rule, produce much effect. Some cases, however, improved markedly under its influence, but this may be merely a coincidence. In most cases the sleep is indistinguishable from physiological sleep. However, in cases in which large doses have been given, abnormal symptoms

may arise, among which may be mentioned flushing of the face, epileptiform convulsions, tremors resembling those of paralysis agitans (during the sleep), and headache, uncertainty of speech, and urticaria (after return of consciousness). Care must be taken, therefore, to give only small doses to the feeble or hysterical.

Elimination.—Chloralose, as such, does not appear in the urine.—*British Medical Journal*, June 9, 1894.

FIFTY CASES OF RECTAL SURGERY.

RICKETTS (*Mathews's Medical Quarterly*, July, 1894) gives detailed statistics concerning fifty cases of rectal surgery, and concludes from these cases that in such operations it is necessary to have the patient completely anæsthetized, and that the use of chloroform is the quickest and best means of securing this end. Cocaine is not satisfactory. This drug should, however, be given the preference in minor surgery.

As to the clamp and cautery, he relies wholly upon them in removing hemorrhoids of any size or number, it being the safest and quickest method, and so followed by speediest convalescence.

An application of the actual cautery to all ulcers and fissures at one sitting has been the most efficacious means of destroying them that he has found.

Division of fistulæ with the bistoury has not failed in any attempt to obliterate them, without in a single case destroying the function of the sphincter.

Of eight cases of ischio-rectal abscess, five occurred at the time immediately following an acute gonorrhœa. Fistulæ resulted, and were operated upon in each of the eight cases. He believes that acute gonorrhœa is the most frequent cause of ischio-rectal abscess in the male. However, an acute inflammatory process, due to any cause, is as likely to produce an abscess, the contents of which may escape into the rectum.

It is interesting to note that thirty of the cases were either tubercular or syphilitic. In the four cases of carcinoma the disease had progressed to such a degree as to render it unwise to attempt a radical operation, except towards the last, when colotomy should have been resorted to, but was refused.

Case No. 50 was unique, in that, falling from a table, a piece of ducking one and a quarter inches square was driven along the side of the rectum by a chair leg. The foreign body remained concealed for five months without detection, until the writer was consulted. A portion of the sphincter was torn away, but its office remains good at the present time.

The average loss of time is but little for surgical cases of this nature.

TREATMENT OF SCORBUTUS IN INFANCY.

CARR (*Medical Record*, June 30, 1894) records an interesting case of scorbutus in an infant, in which the following treatment met with entire success:

Give at once fresh milk, beef juice, and fruits or vegetables. Orange is liked by almost all children, and is greedily devoured. When orange does not agree or is distasteful, other fruits or vegetables will do as well.

The relief of the symptoms of scorbutus is so rapid under this regimen that medicinal agents are seldom needed, except as here indicated.

Local applications of evaporating lotions to the swollen parts seem to afford relief. An opiate is useful in allaying pain and irritability and in checking severe diarrhœa. Stimulation is frequently needed to support the system. Iron is of service to combat the anæmia, but it does not hasten recovery if the dietetic management is neglected. Cod-liver oil and phosphorus are valuable in the cases where scorbutus and rachitis coexist. Sunlight, fresh air, and good hygiene are powerful aids to recovery. The fractured bones are to be treated mechanically until the antiscorbutic diet has had its effect.

INTERNAL HEMORRHOIDS.

DUNDORE (*Mathews's Medical Quarterly*, July, 1894), after an exhaustive paper on this subject, concludes as follows:

1. The ligature is the safest method of operating for internal hemorrhoids, as there is less likelihood of its use being followed hy hemorrhage, stricture, or ulcers.

2. The clamp and cautery cause less pain, shorter convalescence, and are less likely to be followed by retention of urine than when the ligature is used; but hemorrhage and stricture of the rectum may very often follow their improper application.

3. The practice of Whitehead's method should be limited to those cases in which the entire circumference of the anus is involved. In ordinary cases of one or more hemorrhoids it should never be used, as it is liable to be followed by severe after-effects, and at best could produce no more radical result than the clamp and cautery or ligature.

4. Simple dilatation of the sphincter, in-

jection of carbolic acid, and Manley's method are simple palliatives, and their use is very limited.

5. There is no single operation which is available in all cases. Experience alone should suggest the most efficient method of treating each individual case.

IDIOPATHIC TETANUS TREATED WITH SUBCUTANEOUS INJECTION OF ESERINE SULPHAS.

In a communication to the *Indian Medical Gazette* for June, 1894, GAZDHAR reports the case of a Hindoo of the laboring class who found one morning on awakening that he was unable to open his mouth completely and that his whole body was stiff. Ascribing this to the effects of sleeping in the open air, he went to his work as usual; but he soon began to experience shocks passing through the body which rendered work impossible, and he returned to his house. The stiffness of the body increased and the spasms came at shorter intervals. Gradually the jaws became locked up completely and he could take nourishment with difficulty. The ordinary run of medicines proving ineffectual, the reporter tried hypodermic injections of eserine sulphas in $\frac{1}{12}$-grain doses. The effect was marvellous; for after two or three injections the tonic spasmodic condition of the body became less marked, the intervals between the clonic spasms increased, and the stiffness of the jaws lessened considerably. Within a week from the commencement of the injections the spasms had completely disappeared and the mouth could be opened to its full extent. About a dozen injections were performed in all, and the patient made a complete recovery.

BLOODLESS OPERATION FOR THE EXCISION OF HEMORRHOIDS.

BISHOP (*Mathews's Medical Quarterly*, July, 1894) claims for the above operation harmlessly controlling the hemorrhage while excising the tumors and redundant folds of the rectum, and the perfect and undisturbed coaptation of the edges.

The following is the *modus operandi:* With a lateral or dorsal decubitus, as convenience or expediency may decide, and with an aseptic perineum and dilated sphincter, gently and smoothly clamp the base of the hemorrhoids with suitable forceps, so as to parallel the approximated surfaces and free them from folds and adjacent healthy tissues, apply on either side a sufficient length of rubber tubing five or six millimetres in diameter, with a lumen of one millimetre, and secure with aseptic catgut after the general manner of the quilled suture. To assure accuracy of adjustment, the pieces of tubing should be of the same length and have corresponding marks six or eight millimetres apart, indicating the locations for the sutures. Each tube should have its extremities hermetically sealed by the sutures there tied, thus adding a degree of pneumatic elasticity to that possessed by the rubber. All the sutures should be preapplied or tied beforehand to one of the pieces of tubing, with threaded needles in each of the opposite loops, ready for transfixing the tissues and tying over the other piece of tubing. Remove the forceps, and excise the tumor close to the rubber tubing with flat scissors. The fixation of the tubing may be varied by using one piece doubled upon itself and drawn together with a continuous suture, made to assume an advancing figure of eight, or double spiral, by passing the needle always close to the forceps and the thread always encircling the tube from below upward; the perforations then are in one line and the tension evenly distributed. Where many stitches are to be taken it saves the time consumed in tying. This completes a bloodless operation, for the elasticity of this welted suture supplies sufficient pressure to prevent all hemorrhage, and maintains in perfect and uniform contact the margins of the wound without endangering by local asphyxic and necrotic conditions consequent on rigid clamping, and without interfering with the plastic exudation of repair by first intention.

The further dressing of the wound consists simply in passing a strip of moist borated gauze into the rectum, leaving an end protruding from the anus. The catgut sutures soften in due time and permit the tubing to pass away, while the flexibility of the latter has adapted itself to the environments with the minimum of annoyance to the patient.

APPENDICITIS STRICTLY A SURGICAL LESION.

After reporting two cases in his own practice, proving his theory, WYETH concludes a paper with the above heading, published in the *New York Medical Journal* for June 30, 1894, by the statement that, given a surgeon of experience, a clean operator, who, with the minimum of traumatism to the intestines or contiguous viscera, can remove a diseased appendix, it would be better for exploratory laparotomy

to be done in every instance within the first twenty-four hours of the disease.

On the contrary, were he himself the subject of an attack, and were he not sure of his surgeon, he would keep flat on his back, quiet peristalsis and voluntary motion with morphine, and take the chances of resolution, encapsulation by adhesion, or rupture into the intestines. If there is one particular operation an inexperienced man should in all conscience avoid, it is this.

DISINFECTION.

SAGE (*American Medico-Surgical Bulletin*, July 1, 1894) discusses the various methods of disinfection as follows:

Conditions of temperature and moisture are to be considered in the application of disinfectants to infectious material. A moist condition of the mass to be disinfected facilitates diffusion and allows prompt penetration by the disinfectant.

A high temperature increases the activity of chemical disinfectants, aids solution, and renders the mass permeable, and should be employed whenever the conditions will permit. Various infectious matters are best destroyed by special measures or means adapted to each individual case. Sputa and sputa cups are best disinfected by steam; excreta and discharges may be effectually treated by milk of lime; while water-closets, cesspools, vaults, and stables should receive a liberal application of chloride of lime.

The sick-room, when vacated, may be thoroughly purified by scrubbing the floor and wood-work with a solution of corrosive sublimate. Furniture can be wiped off with the same fluid and afterwards washed with soap and water.

In connection with the application and use of disinfectants, it is proper to review briefly the special action and deportment towards infectious material of some of the best known of the large class of disinfecting agents.

Fire is one of the best disinfectants. Unfortunately, however, its application is limited to the destruction of valueless articles in cases of extreme urgency, demanding prompt and total destruction not only of infectious matter, but also of the means or agency of its conveyance. A necessity might also exist for the use of fire, where heavy mattresses, feather and straw beds, or heavy quilts used about the sick with infectious disease are to be cleansed. Such articles are difficult to disinfect unless special apparatus is at hand to facilitate the operation. Whenever such special means are not procurable, the only safe and proper course to pursue would be to burn the articles in question.

Superheated steam or hot air has but a limited application in disinfection. It penetrates so slowly that the exposure of many fabrics to a degree of heat and for a length of time necessary to destroy the infectious material renders them much less durable, and may even change the colors of cotton and woollen fabrics. It is also very difficult to regulate the temperature when dry heat is employed as a disinfecting agent; but used in connection with steam, however, dry heat is very useful, increasing the effectiveness of the latter, and as the temperature increases the period of exposure of the article in the disinfector is shortened.

Moist heat, or steam, is the most reliable and useful disinfectant we have. Unlike chemical disinfectants, it cannot be neutralized, while with care and proper treatment, the most delicate fabrics can be sterilized by means of it. All articles of clothing, bedding, carpets, curtains, towels, papers, letters, and a variety of fabrics can be thoroughly and quickly disinfected by steam, the period of exposure being regulated by the bulk or size of the article and permeability of the substance. Disinfection by steam is not applicable, however, to articles of clothing or bedding soiled by blood or pus, as the stain becomes fixed. Articles of leather and rubber also cannot be disinfected by steam.

Corrosive sublimate is of doubtful utility. With albumin, the salts of mercury form compounds which are coagulated or precipitated upon the surface of the substances to be disinfected, forming a veneer or coating, which prevents contact of the disinfectant with the infectious material. An excess of mercury salt dissolves the albuminate of mercury, which is of itself a disinfectant of considerable power. It is necessary to use a quantity of this material greatly in excess of that really required to disinfect a mass of infectious material, and even then there would be no certainty of complete and absolute disinfection. Its use should be limited to substances of a non-albuminous character. It should never be used about instruments or articles of a metallic nature, as it attacks metallic surfaces.

As a disinfectant for the wood-work, floor, walls, and furniture of the sick-room, for carriages, hacks, and vehicles used in transporting the sick with infectious disease, there is no better agent. It should be applied in solution (1 to 500 or 1 to 1000), using a scrubbing-brush or broom.

Crude carbolic acid is a very poor disinfectant; as the quality improves, the effectiveness of the agent increases. Mixing with an equal quantity of sulphuric acid also increases its power. It has quite a wide range of utility, and is generally applicable to disinfection of sputa, dejecta, and discharges. It is used in solution of from three to five per cent.

Chloride of lime depends upon the available chlorine present for its efficacy as a disinfecting agent. It is limited to cleansing cesspools, vaults, cellars, and places of like character.

Sulphur is another agent of doubtful utility, often overestimated. It is quite settled that the action of sulphur does not penetrate to the degree formerly supposed, the evidence tending to show that it acts upon the surface only. It has but a limited application in or about the sick-room.

Calcium hydroxide, in the form of milk of lime, is another disinfecting agent which is very useful among chemical agents. Its range of utility exceeds all other disinfectants; all micro-organisms are destroyed by it, whether applied to walls as whitewash or mixed with the infectious material. It is more generally applicable as milk of lime, which consists of recently-slaked lime mixed with four parts of water. In this form it can be used to disinfect excreta, discharges in sputa cups, and, if desired, can be applied to walls or used to disinfect the contents of cesspools and vaults. It always should be added to the point of marked alkaline reaction, the alkalinity determined by testing with litmus, the use of litmus being necessary on account of the varying quality of the lime due to age and many impurities in the lime. Unslaked lime should never be added to infectious material, as the action is so slow that the mass is not entirely disinfected, as the lime, slaked and neutralized, is not diffused throughout the mass until it has lost its power as a disinfectant.

VAGINAL HYSTERECTOMY WITHOUT CLAMPS OR LIGATURES.

"The assertion that vaginal hysterectomy may be so performed as to make the operation almost a minor one may strike the average surgeon as a strange one, and false; but it is a true statement," says LANPHEAR (*Kansas City Medical Index*, June, 1894). The method he considers the ideal one for small intramural fibroids, procidentia, and for early cancer of the cervix. For far-advanced epithelioma, causing symptoms sufficiently severe to demand operative interference, it cannot be advised, nor can it be employed in tumors too large to be delivered through the vagina, nor in cases in which pyosalpinx is a complication. He bases these statements on four successful cases performed by himself, and thus endorses Pratt's conclusions:

1. The loss of blood is trifling, and as the vessels are not injured, they remain to repair the wounded parts, which they do with rapidity and completeness.

2. Diseased tissue is not disturbed, the uterus not being mutilated nor even wounded, the entire organ being removed intact.

3. If by accident a blood-vessel is cut, it is so perfectly in the field of operation that it can be readily secured by forceps and tied without injury to neighboring nerve-fibres.

4. There is no pinching of the sympathetic and spinal nerve-fibres by clamp or ligature, consequently there is no "shock" following operation.

5. When necessary the tubes and ovaries can be removed with no loss of blood and the peritoneal opening closed as perfectly as in cœliotomy, preventing hernia and leakage of discharges into the pelvis.

6. The operation seems almost devoid of shock or danger to the patient, practically converting a major operation into a minor one.

7. It possesses none of the bad features of vaginal hysterectomy by the clamp or ligatures,—viz., high death-rate, slow convalescence, and disturbances due to pressure.

8. There is scarcely any pain and very little soreness after the operation, the reaction and healing are rapid, the freshness and buoyancy of the patients are restored to them, and their natures, instead of being changed for the worse, are radically improved.

THE VALUE OF INOCULATIONS WITH SEPTIC OR TOXIC AGENTS IN THE TREATMENT OF MALIGNANT NEOPLASMS.

WYETH (*Journal of the American Medical Association*, June 30, 1894) presented a paper before the Forty-fifth Annual Meeting of the American Medical Association with the above title, in which he reaches the following conclusions:

1. Sarcoma may be cured by septic infection. The sepsis of erysipelas exercises the most powerful curative influence. Infection from the streptococcus pyogenes aureus will also cure sarcoma. The injection of the sterile products

of Fehleisen's coccus will also cause these neoplasms to disappear.

2. These agents act through the blood. Thus, erysipelas attacking a breaking-down sarcoma of the back, caused this to disappear simultaneously with a similar growth in another portion of the body of the same patient not locally infected. It is probably better to inoculate in the mass and get the local action of the inflammatory process when this is possible.

3. The lower the order of the structure of the sarcoma the less likelihood of a successful result. Thus, in tumors of a myxomatous character the prognosis is less favorable.

4. Epitheliomata may also be made to disappear or their growth may be retarded by septic infection.

5. Adenoid carcinomata are only slightly, if at all, susceptible to cure or retardation in growth by these agents.

AN EFFICACIOUS METHOD OF TREATING URETHRITIS.

LEWIS (*Kansas City Medical Index*, June, 1894), after calling attention to the anatomy of the urethra, states his belief that in ninety cases of a hundred of gonorrhœa it is necessary to treat the posterior urethra. In the treatment of this he employs, as a rule, the catheter and bulb for zinc sulphate irrigation and the deep urethral syringe for argentic nitrate injections. Solutions of graded strength of each of these remedies are used after fairly well prescribed rules.

After the acute symptoms have been subdued by time or judicious treatment,—that is, in the condition shown by most cases of chronic urethritis,—the method of treatment is inaugurated with the use of the milder of the two remedies,—an irrigation of zinc sulphate in the strength of one-twentieth per cent. The patient having first urinated, with glycerin lubrication a small, soft-rubber catheter (No. 12 French) is introduced into the urethra until its eye is placed proximal to the cut-off muscle,—*i.e.*, within the posterior urethra; the bulb syringe, holding eight ounces of the solution, is applied to the distal end of the catheter, and three-fourths of its contents are injected into the posterior urethra, whose membrane is thus thoroughly bathed with the solution as it runs back into the bladder. The catheter is then withdrawn for an inch or two till its eye is external to the cut-off muscle, whereupon the remaining fourth is injected, running forward alongside the catheter, irrigating the anterior urethra. Thus, both the anterior and posterior urethra have been thoroughly irrigated. The patient is told to stand up and pass out what has been injected into his bladder, and in so doing he accomplishes another irrigation of his entire urethra. Slight burning follows the irrigation. A day later the irrigation is repeated; two days after that another repetition, but with added strength, say one-eighth per cent.; two days later, one-fourth per cent.; and so on until two and one-half per cent. is reached, when usually the discharge at first present has disappeared and the high degree of tenderness is relieved. The second of the two series of treatments should then be instituted,—deep injections of silver nitrate.

After filling an Ultzmann syringe with a one-fourth-per-cent. solution of nitrate of silver, the catheter stem is lubricated with glycerin and introduced until its inner end has reached the deep urethra. The piston is now depressed at the same time that the syringe is being withdrawn, spreading the solution over the entire urethral tract. This awakens some transient reaction, such as desire to urinate. It is well, therefore, to have the patient sit down for a while till this passes off.

This treatment is repeated every other day for a time, with progressively increasing strength of solutions; usually it will not be found necessary to go above three per cent. With improvement the urethra tolerates the stronger solutions readily. With the disappearance of pus and shreds from the urine the patient may be considered cured. It will be found, however, that a few shreds will be apt to show in the first portion occasionally, long after it is justifiable to discontinue treatment. If the shreds are composed mainly of mucus, with only a few pus-corpuscles, they need not be regarded as indicating continuation of active measures.

If tuberculous infection be present the method is directly contraindicated.

CONTROL OF HEMORRHAGE IN SHOULDER AMPUTATIONS.

KEEN (*American Journal of the Medical Sciences*, June, 1894), in discussing this topic, first considers disarticulation of the shoulder. The control of hemorrhage in this operation is best accomplished by the use of Wyeth's pins. The patient is brought to the edge of the table with the shoulder projecting somewhat beyond the edge. The arm is held at a right angle to the body. Two sharp-pointed cylindrical pins eleven inches long and one-quarter of an inch in diameter near the head

(No. 20 French catheter scale) are used. A good deal of force is required to push the pins through the tissues, and the suggestion is made that the point be made triangular, like that of a trocar, to facilitate introduction. The anterior pin is introduced through the middle of the anterior axillary fold (tendon of the pectoralis major) at a point a little nearer to the body than what may be called the centre of the fold transversely. The point of emergence of the pin is of much greater importance than the point of insertion; this should be an inch within the tip of the acromion. The pin being pushed through, the point is protected by a sterilized cork. The second pin is now introduced at a corresponding point through the posterior axillary fold (tendon of latissimus dorsi), emerging again an inch within the tip of the acromion. Some little care is needed to avoid striking the spine of the scapula. The exact point of emergence is important, in order to avoid the precise objection which Treves adduces,—namely, that if the pin emerges near or at the tip of the acromion, the moment the head of the humerus is removed the tubing is apt to slip downward, compress the two flaps against each other, and thus hide the cavity formerly occupied by the head of the humerus.

The pins being placed in position, a piece of black rubber tubing half an inch in diameter is then wound tightly around the axilla and shoulder on the hither side of the pins. It is important that this tubing should be the pure black rubber, which is very elastic, and not the far less elastic white rubber tubing. The disarticulation having been effected, the main vessels and all visible smaller vessels are tied and the tubing quickly removed. All other spurting vessels are then seized with hæmostatic forceps. The pins are not removed by Keen until after seizing the vessels, so little have they been in his way. The punctures made by the pins heal quickly and are absolutely of no importance.

In amputation of the shoulder-joint, in cases where the axilla is involved so high that the pins cannot be employed, Keen advocates Delpech's method.

When it is necessary to remove the arm, the scapula, and the clavicle, the method advocated by Berger is endorsed. The steps of the operation are described as follows: "An oblique incision extending from the external third of the clavicle to an inch above the inferior border of the great pectoral muscle. We thus discover and can cut, near to its origin on the coracoid process of the scapula, the lesser pectoral. The index finger is then carried through the cellular tissue along the serratus magnus muscle, then the subscapular muscle, and is used as a hook in order to draw outward the mass of vessels and nerves. The artery is always situated at the anterior part of the mass, is surrounded and, as it were, indicated by the two roots of the median nerve, and nothing is easier than to surround it with a ligature which will embrace nothing else. This process appears preferable in that it produces but little injury to the parts, that it leaves a certain space between the ligature and the trunk, and permits temporary compression of the subclavian artery above the clavicle on the first rib."

SURGERY OF THE SPINAL CORD.

THORBURN (*British Medical Journal*, June 23, 1894), in a series of lectures delivered on this subject, states that the mortality of laminectomy after injuries is about sixty-seven per cent., as against eighty per cent. for the untreated cases. The operations for tuberculosis give better results. Thus, of seventy cases performed by seven operators, there were but twelve deaths due to or hastened by operation, giving a percentage mortality of 17.1; therefore the writer holds that the dangers of the operation are not great, especially in view of the conditions which it is intended to relieve. The fatal issue is usually due to shock. In a collection of thirty-eight cases of penetrating wounds of the spinal cord, there were fifteen deaths, nine due to septic infection, usually taking the form of a rapidly-spreading meningitis. It is held that in case of suspected injuries of the cord, which are liable to be septic, the wound should be left open, thus allowing of the escape of such discharges as may form. The question of recovery of function after penetrating wounds is one of extreme importance. In twenty-one cases the opportunity for recovery of structure and of function was the best possible. There could have been no great separation of the cut surfaces; there was no septic infection. In spite of these most favorable conditions, complete recovery of function occurred in three cases only. Of the numerous cases with permanent symptoms, very few showed any amelioration of the earliest condition. The conclusion from this seems clear that in man we cannot hope for anatomical recovery; that vicarious conduction may allow of restoration of function to some extent, but that in the case of complete transverse lesions, in which vicarious conduction is manifestly impossible, no recovery whatever will take place. This conclusion by no means applies to nerve-

roots after they have left the structure of the cord. Indeed, we may confidently anticipate recovery of the nerve-roots when divided within the vertebral canal. In compound fractures, which are chiefly gunshot wounds, all splinters and foreign bodies should be removed. Fracture of the spinous process, when brought about by direct blow, when the bone is sunk below its normal level, would also call for operation.

In fractures of the laminæ, operation is indicated if there are symptoms of pressure upon the cord. There is here no reason to anticipate a rebound of the bony fragment. There is also a reasonable probability that the medullary lesion is not a complete crush. Finally, the operation itself is the simplest. Of three recorded operations, two were completely successful.

In fracture dislocations of the bodies of the vertebræ, displacement is almost always forward and downward. In association with these lesions it is probably not very rare to meet with diastases,—that is to say, with dislocations in which the displaced bones have recoiled, so as to leave no permanent disturbance of the relations. Nevertheless, the cord may be very seriously injured. The fractures are usually oblique, from behind and above downward and forward. The distinction between a crush, followed by recoil of the bones in the proper position, or a similar injury associated with a temporary compression, is one which is extremely difficult to make. The asymmetry or deformity may sometimes aid in forming an opinion. In two instances there have been obtained excellent results in operation for hemorrhage into the spinal canal, in both cases the clot being removed by laminectomies. In one case this operation was not performed for three months after the injury, when there was removed a firm fibrous tissue, which had formed in the clot. There is one unusual lesion which can be recognized; this may be called gravitating hemorrhage, which makes its presence known by paralysis extending upward. Operation at the site of injury would be indicated in such a case. The author holds that, for all practical purposes, we have three varieties of injury which call for treatment,—namely, permanent pressure upon the cord, temporary crushing of the cord, and hemorrhage. The latter is so rare and so little likely to be diagnosed that we are almost justified in neglecting it. As regards the two former, it is clear that in cases of temporary compression—which constitute the majority—laminectomy is necessarily useless. The crush is over, the cord has already sustained its maximum of injury, and it lies in the best possible position for recovery, if such be possible. In cases of permanent compression, on the other hand, we may certainly restore the normal lumen of the vertebral canal, but we can hardly hope to do much, if any, good to our patient; in the first place, because, as we have already seen, the injured cord will not be capable of regeneration; and, in the second place, because the extreme mortality—or, at least, persistency of symptoms—in the cases of temporary compression is such that we can hardly hope for benefit in the more severe cases in which the compression has been permanent.

Finally, he concludes, in compound fractures, operate. In fractures of the spinous processes and laminæ, with injury to the cord, we also operate. In simple fractures and dislocations of the bodies of the vertebræ, if there is a reasonable probability that the injury is due to hemorrhage, operation is advisable; but in all other cases, however, laminectomy is not an eminently valuable surgical procedure.

PRESCRIPTIONS.

The following application is recommended in ichthyosis and chronic eczema:

℞ Papain, ʒii;
Acidi salicylici, ʒi;
Glycerini,
Ol. ricini, of each, ʒiv. M.
Sig.—Apply, with friction, to the surface of the body.

Antipruritic oil:

℞ Acidi carbolici, ʒi to ʒii;
Liquor potass., ʒi;
Ol. lini., ʒi.
M. et adde ol. bergamot, q. s.
Sig.—Shake before using.

—*British Journal of Dermatology*, July, 1894.

RUPTURED INTESTINE FROM ACCIDENT; LAPAROTOMY; SUTURE OF GUT; RECOVERY.

THOMAS (*British Medical Journal*, June 23, 1894) was called to see a patient, aged fifty-five, who twenty-four hours before had received a blow upon the abdomen which had caused vomiting and persistent pain. On admission, the pulse was 80 and strong; the patient was able to walk. Operation was performed immediately, and an incision through the belly-wall evacuated upward of a pint of putrid serum; a thorough search showed a perforation of the ileum, from which liquid fæcal matter was oozing. This rupture was closed by a double row of Lembert sutures. The abdominal cavity

was thoroughly irrigated with 1 to 100 carbolic lotion, and a drainage-tube inserted and the belly-wound closed. Recovery was uninterrupted.

PEAT WOOL IN SURGERY.

For many years there has been a gradually growing demand on the Continent for peat in a coarse powder for use as an absorbent and deodorant of excreta, for by its use the dry system of sewage removal, obtaining so largely abroad, was found to be deprived of the various and obvious objections thereto. The reason of its growth in favor for this purpose was found to be its power of absorbing liquids (nine times its own weight of water), of causing the liquids which it has absorbed to be resistant to putrefaction, and of fixing and preserving the ammoniacal products present in sewage. The two former of these properties soon attracted the attention of the surgical world abroad, a monograph being written on the subject ten years ago in Germany. BURGESS (*Lancet*, July 21, 1894) states that more recently the invention of processes for extracting the fibre from dust and *débris*, and the discovery of the fact that these fibres will form a wool of a firm, elastic nature, have given a great impetus to the use of peat in surgery. So great has been the favor this product has gained abroad that the French War Department has now definitely adopted i to replace the gauzes and wools which have been hitherto used in the military hospitals. Peat fibre, as now prepared for surgical purposes, is a fine, brown, glossy wool, with a faint aromatic smell. It feels a little rougher than fine absorbent wool, but makes a more comfortable dressing, as it is much more elastic. Microscopically, one would, of course, expect to find the more resistant portions of vegetable tissues in a dry and shrivelled condition. Various different observers have described different forms of cells in peat. One especially draws attention to cells provided with stomata, through which the fluids flow in and fill the empty cell cavity when the fibre is immersed. In the samples examined by the writer the microscopic structure was exceedingly simple. The fibres were macerated in a solution of potassium, teased out, and examined with a one-eighth-inch objective. It was found that they consisted almost entirely of very long and very narrow cells, with finely tapering ends. The fine peat fibres consisted of bundles of from fifty to one hundred of these cells, which were from one-fifth to one-fourth the diameter of fine cotton fibres. They were perfectly homogeneous and glassy; they had a minute cell cavity, which appeared as a fine dark line, with no trace whatever of stomata. Besides these, every here and there was a much broader cell, with transverse marking, resembling the peculiar vessels of plants, and there were a few polygonal vegetable cells adherent to these. The most striking points were the small size of the fibres, their great length, transparent, homogeneous structure, and regular grouping.

With regard to the reputed antiseptic qualities of peat, careful investigation has quite settled the fact that peat contains a substance which does definitely retard the development of micro-organisms. This substance or substances can be extracted by steeping the peat in water, and is of a faint acid reaction, but its exact composition has not been worked out. There is, however, some power of preventing putrefaction present in peat greater than is accounted for by the possession of this substance, and it is surmised that it is the fact of the absorbed fluids being actually taken into the empty cells, and held there out of contact with air, that to some extent accounts for this. No claim is made for its being in any sense a bactericide, but even the above retarding effect upon germ growth is a power not possessed by any other dressing material of itself. If a stronger antiseptic be needed, peat, described above, can be most effectively, on account of its arrangement of fibres, impregnated with perchloride of mercury or any other antiseptic.

LUCAS-CHAMPIONNIÈRE gives a graphic account of the comfort experienced in cases of extravasation of urine necessitating free incisions after dispensing with ordinary dressings and packing with peat wool. The same writer goes on to describe numerous major operations where, even with much oozing, one single peat dressing was kept on until the wound had united. In the writer's own experience, in one case of cellular erysipelas, involving the entire leg and obliging numerous long and deep incisions, peat wool was entirely employed and fully justified its reputation. To recent and clean wounds a layer of perchloride gauze was first applied and then a pad of peat wool, and in no case was more than one dressing needed. For padding splints nothing better can be imagined; one gets an elastic pad which has no tendency to felt and which does not get sour and ill smelling, however badly it is treated.

With regard to its disadvantages, there are two: first, a tendency for the finer fibres to break if handled much, by which a little dust

is produced, and for this reason it is not recommended as an immediate application to operation wounds. The other disadvantage is its brown color; but in actual practice neither of these forms any noticeable drawback to its usefulness.

MALIGNANT INDIAN SYPHILIS TREATED WITH THYROID EXTRACT.

MENZIES (*British Medical Journal*, July 7, 1894) reports four cases of this disease in which thyroid extract was used with most gratifying results. The patients were all invalids, lying in the military hospital, having been sent down from their respective stations for change to England. They were all in a very weak, sickly state, the disease being complicated by malarial fever, bowel complaints, etc. All mercurial and alterative treatment was suspended for the time, in order to watch the effect of the remedy.

No recurrence of the eruption took place. Old cicatrices took on a healthy action and the pigmentation in a great degree disappeared. He particularly draws attention to the following considerations: 1. The exceptional virulence of the poison. 2. The undeniable value of thyroid extract given alone, without any mercurial preparations. 3. The hygroscopic and absorbent properties of the powdered extract. He found it useful for insufflation and dusting purposes. "Tabloids" are very susceptible to moisture. Three other cases came under his notice: (*a*) rupial ulcers of face and arms; (*b*) ozœna, with ulceration of nasal passages; (*c*) hereditary syphilitic patient with a broken-down gumma of calf. These men also decidedly progressed under the new treatment. He regards the remedy as a powerful skin tonic and adjuvant to the mercurial and alterative treatment of syphilis.

RECURRENT APPENDICITIS.

MAYO ROBSON (*Lancet*, June 30, 1894) reports eight cases of recurrent appendicitis in detail, and as a result expresses the following beliefs:

In the cases reported—characteristic ones, where the operation was performed between the attacks—there are three courses which may be pursued: 1. Non-operative, trusting to rest and diet, with opium, if required, in order to bring about resolution, in the hope that the existing attack may be the last. 2. Operation on the second or third day of a seizure, as advised by American surgeons, who discourage the removal of the appendix between the attacks, on the chance that there may be no recurrence. 3. Operation in the quiescent period between the attacks, (*a*) because the patient is likely to be in the best possible condition; (*b*) because there is less likelihood of there being an extensive collection of inflammatory products in or in the neighborhood of the appendix, and therefore there will be less danger of soiling the general peritoneal cavity and less fear of peritonitis; (*c*) an operation in the quiescent period seldom requires drainage, and therefore the wound can be made secure, and there will be less likelihood of hernia following operation; and (*d*) the appendix can be dealt with in a more satisfactory manner than when it is acutely inflamed and hidden by greatly distended intestines. In deciding on the line of treatment, whether medical or surgical, the patient should have matters fully explained to him, the dangers of recurring attacks, with the sufferings and inconveniences, being balanced against the risk of operative interference and the results gained by operation; therefore, in all these cases Robson urges the co-operation of physician and surgeon, so that, if possible, the opinion given may be free from bias. Can these several risks be estimated? Fitz gives the mortality of perityphlitis medically treated as eleven per cent.; this is probably too high for attacks of recurrent appendicitis, but who is to say that in any case the next seizure may not end in perforation and death? What are the inconveniences? In all the cases related, incapacity for the ordinary pursuits of life and practically invalidism were marked features. What is the likelihood of recurrence? In the cases related there seemed to be every probability of the recurrences being repeated indefinitely, and it is probable that if any case suffers from two or three attacks, there is a strong probability of many more attacks until some complication supervenes.

What are the risks of operation in the quiescent period? Here we stand on more certain ground, for published statistics prove the dangers to be very slight in the hands of those accustomed to such operations.—not more than two or three per cent. And, lastly, What are the results which may be looked forward to after recovery from operation? In such cases as have been reported, and in the writer's now mentioned, the patients have been apparently completely cured.

Although the author does not agree with those surgeons who argue that every case of recurrent appendicitis should be operated on, he believes that in recurrent appendicitis operation should be resorted to as soon as it be-

comes evident that there is a probability of the attack being repeated, especially as the operation is one that can be undertaken in the quiescent period with every prospect of immediate and ultimate success.

THE USE OF ACETANILIDE IN SURGERY.

WOODS (*Journal of the American Medical Association*, July 21, 1894) has used acetanilide in twenty cases of operative wound and laceration. He finds it an admirable and curative application to internal hemorrhoids, and a satisfactory dressing in the form of a suppository after their removal by the Paquelin cautery. He recommends it as an injection in gonorrhœa, using,—

℞ Acetanilide, ʒi;
Alcohol, ʒss;
Aquæ, ad fʒviii.

Salol is administered along with this. The same injection may be used for the treatment of sinuses. In one case physiological symptoms of absorption of the drug became manifest, an unknown quantity of the medicament having been dusted over an extensive scald.

The advantages claimed for acetanilide are that it is cleanly, odorless, antiseptic, desiccant, hæmostatic, stimulant, alterative, nontoxic practically, lasting in its effects if intermitted, does not crust, is easily removed, and that it acts in these ways when perfect cleansing of a wound is impracticable, while it is a perfect substitute for iodoform at an insignificant cost, and is not injured or altered by moisture, as it may be saturated with water and, being drained and dried, is found to be unaltered.

TREATMENT OF STONE IMPACTED IN THE URETER.

Under this title, COTTRELL (*Lancet*, June 30, 1894) lays down the following treatment: It is very important in cases of renal colic to find out whether the stone has passed into the bladder or whether it has been arrested during its course. It has so frequently happened that an impacted stone becomes more or less quiescent, the condition causing atrophy of the corresponding kidney, and this condition has not been known or suspected until mischief on the opposite side has led to suppression of urine. Where, therefore, there is a history of severe renal colic of an intermittent character, combined with tenderness at one spot, the whole symptoms abating after a time without any evidence of a stone being passed down into the bladder, impaction must be most strongly suspected. If combined with symptoms pointing to the formation of a hydronephrosis, the diagnosis becomes a certainty.

This is one of that class of cases where the ureter should be explored and the stone, if found, extracted. The patient should be urged to submit to this treatment, and the consequences if he neglects to notice the danger signal should be clearly put before him. In another class of cases we are called upon to operate for hydronephrosis or for pyonephrosis, resulting from impacted stone. If there is reason to suspect that a fair amount of working kidney has escaped the disorganization, it may be worth while to search for and remove the impacted stone before proceeding to more radical measures.

If we are called upon to operate upon a case where suppression of urine has come on, the treatment will be best discussed under two heads: (1) where the symptoms of uræmic poisoning are not well marked; (2) where the uræmia is well pronounced. In cases coming under the first heading, we must be certain, if possible, which is the side affected with calculus, and the history of the case will help to guide us in this matter. Having decided upon which side the impaction has probably occurred, the ureter should be thoroughly explored, and if a stone is found it should be removed. If no stone is found, it will be good surgery to cut down upon the kidney and put a drainage-tube in the pelvis, which will probably prevent the patient dying from uræmia. Under the second heading, where uræmia has supervened and its symptoms are well marked, it is certainly not good treatment to search for an impacted calculus. In a case of this kind we should be content to make an opening into the kidney and drain off the urine. It might happen that, owing to want of a careful history of the case and in the absence of subjective symptoms, an atrophied kidney is opened, or that organ may be absent on the side operated upon. Should the surgeon come across either of these conditions, the best thing to be done is to turn the patient over at once and to operate upon the other side.

If the drainage of the kidney relieves the uræmia, a search should be made for the stone when the dangerous symptoms have subsided.

When a stone is impacted in the upper part of the ureter, the symptoms are so like those of stone in the kidney that the two conditions have always been confounded, and the diagnosis of impacted stone has only been made after a nephrotomy has been performed. If a pa-

tient has symptoms of stone in the kidney, and a very careful exploration fails to reveal the calculus, the upper part of the ureter should be explored, the nephrotomy wound being somewhat enlarged, if necessary, for this purpose. If not found, a soft bougie might be passed down the tube and an endeavor made to locate the calculus, and if this is successful the stone can be easily removed.

Mr. Godlee reports a case in which he successfully pushed the stone on to the bladder by an œsophageal bougie. The author condemns this treatment as a routine practice, pointing out that there is no evidence at all to point out the size of the stone, and the symptoms may be quite as severe where the calculus is small as where it is too large to be pushed through the mouth of the ureter. Further, if ulceration of the ureteral wall has taken place from pressure, it would be very easy to push the stone and bougie out of, instead of down, the ureter. The middle three-fifths of the ureter can be very conveniently exposed and explored by an operation similar to that which is laid down in the text-books for ligature of the common iliac artery. As is well known, when the peritoneum is stripped up it always carries the ureter forward with it, and advantage can be taken of this fact. Having found the ureter, it may be explored between the finger and thumb nearly to its lower end. Should a calculus be found low down and not in a position where extraction is easy, it is desirable to work it up to opposite the wound with the thumb and finger, and then extract it. The lower end of the ureter may be explored in the female through the vagina and in the male through the rectum. The removal of stones from the lower end may be accomplished very easily in the female by cutting down upon them through the roof of the vagina. Where they project into the bladder, Mr. Morris advises that the ureteral opening of the bladder should be enlarged by cutting and the stone extracted by forceps. This operation might be effective where but one stone existed, but where there are several, as is generally the case, the manipulations necessary in removing the stones by forceps might possibly open the peritoneum, the only case in which this method was employed having terminated fatally because of this accident. Finally, in operation for impacted stone at the lower end of the ureter in the male, the writer advocates a perineal operation, dissecting down between the urethra and the rectum until the base of the bladder is exposed. Advantage may be taken of the thickness and of the expansile property possessed by the wall of the ureter. If the calculus is thoroughly squeezed between the thumb and forefinger, the wall of the ureter being stretched tightly over it, a longitudinal incision will, after the removal of the stone, so contract that in many cases its site cannot be afterwards discovered, except by a very careful search. The ureter should not be sutured.

PUNCTURED WOUNDS OF THE LIVER.

Under the above heading, R. Romme (*La Tribune Médicale*, July 5, 1894) reviews this class of injuries, especially referring to the cause of President Carnot's death.

In the five hundred and forty-three cases of traumatic diseases of the liver collected by Edler, sixty-five were produced by cutting or pointed instruments. Of this number, twenty-three recovered and forty-two died. The cause of death in thirteen cases was from hemorrhage and in twelve from peritonitis. Shock was present in a great majority of cases. Pain was not so common a symptom, nor was jaundice a constant sequel. Bilious vomiting, however, was very frequent, as were also respiratory troubles, as cough and dyspnœa.

The principal symptoms—traumatic shock with collapse, local and radiating pains, nausea, vomiting, and respiratory disturbances—were all present in the case of M. Carnot. We quote the report given at the time:

"At the moment of the accident the President carried his hand to his breast, saying, 'I am wounded,' and with that he lost consciousness. He was laid down in the carriage, with the head thrown back. His face was very pale, and his eyelids, half closed, gave the impression of impending death. During the time required to transfer him to the préfecture he suffered from nausea two or three times, but did not vomit. Under the first incisions of the operation he regained consciousness, responding distinctly to the questions concerning his sufferings, the face remaining always pale and his strength gradually sinking. Later he complained of dyspnœa, followed by some convulsive movements, and soon afterwards died. As internal hemorrhage was suspected, ice compresses were applied to the abdomen while preparations were being made for the operation. Upon the arrival of instruments, without administering an anæsthetic, an incision twelve to fourteen centimetres long was made in the abdominal walls, allowing the escape of considerable blood. The lips of the incision were picked up by hæmostats, allowing better exploration. A puncture of the liver to the depth of two to three centimetres was

discovered; this was enlarged and packed with gauze. Before the operation could be concluded, however, the President suddenly experienced great agony, and with a convulsive movement, which caused extrusion of the intestines through the parietal incision, passed away. The autopsy showed a wound of the left lobe of the liver twelve to thirteen centimetres deep, opening the portal vein in two places, and causing death from intraperitoneal hemorrhage."

From the experience gained in this case, the author would recommend early exploratory laparatomy in penetrating injuries of the liver.

HALLUX RIGIDUS.

COLLIER (*Lancet*, June 30, 1894) gives some valuable points on the stiff and painful condition of the metatarso-phalangeal joint of the great toe, usually consequent on and associated with flat-foot, and, like flat-foot, not necessarily confined to one foot, but more often, sooner or later, affecting the same joint of the opposite foot. The victims of this disorder are usually young persons at or about puberty. Males would appear to be more often affected than females, doubtless due to the fact that young males are more frequently employed in arduous work, necessitating more standing and the carrying of heavier weights than females. This affection is not necessarily associated with any permanent constitutional ailment or tendency, unless it be a want of vascular and muscular tone and some impairment of nutrition. The affected foot presents a peculiar and characteristic appearance. In the first place, it is an abnormally long foot for the size of its owner. Next, the foot is nearly always cold, damp, and more or less blue, the tone of its vessels, as well as its nutrition, being apparently impaired. The distortion of the foot is characteristic and peculiar, and is due to the fact that any pressure between the head of the metatarsal bone and the sesamoid bones on the tendons of the short flexor cannot be tolerated. The metatarsal bone is flexed on the tarsus and is adducted to the midline from its fellows. With this the proximal phalanx is slightly flexed. The head of the metatarsal bone appears through the skin to be enlarged, and there is found sometimes some lipping of the cartilage of this bone at its under and lower aspect, in the neighborhood of the sesamoid cartilages. In early cases pain is not usually complained of until the end of the day, and then mostly after long standing or much walking; but as the disease progresses, the pain is continuous, except when the patient is not standing and at night. The joint is never red, painful, or tender to the touch, except on manipulation, and gives no indication of containing fluid or of being the seat of acute disease. Flexion of the joint is generally readily permitted, but any attempt at an extension elicits opposition and evidence of acute pain on the part of the patient.

The author has diagnosed, treated, and subsequently operated on nine cases,—two females and seven males,—and in all but two the subjects were young adults between sixteen and twenty years of age. In all the disease was associated with flat-foot, cold feet, and impaired nutrition. After a preliminary trial of tonics, frictions, and appropriate boots, all were operated on, and the head of the metatarsal bone removed. The joints healed by first intention, and a movable and useful joint resulted.

ILEO-COLOSTOMY, AFTER SENN'S METHOD, IN WHICH PLATES WERE MADE FROM THE TURNIP-CABBAGE.

BOROCZ (*Centralblatt für Chirurgie*, July 7, 1894) successfully performed ileo-colostomy by using fresh cabbage-turnip plates.

A young man, aged nineteen, presented himself with a tumor in the cæcal region the size of a hen's egg, and from the history chronic inflammation of the cæcum with adhesive peritonitis was diagnosed. As the enlargement was causing obstructive symptoms and impairing the general health, its removal was attempted. Upon examination, the enlargement was found in the cæcum, into which the ileum had become invaginated and grown fast. Two clamps were applied to the intestines; the ileum and then the colon were severed, invaginated, and closed by sutures. The tumor was then attacked, but so many adhesions presented that it was finally left *in situ*, and the union of the two intestinal ends by lateral anastomosis was proceeded with. Two plates of the cabbage-turnip (Kohlrüben) were used, resembling Senn's decalcified bone-plates, each having a central opening of three centimetres; these plates should be freshly prepared.

The threaded plates were applied as Senn has instructed, with the addition of the Kürchner suture on the lower side previous to fastening the plates, whereby the serous membranes were united at this point. After the union of the four principal ligatures, the operation was completed by continuing the Kürchner suture on the remaining side and two ends. The opera-

tion point was then covered by the great omentum and the peritoneal cavity cleansed with sterile gauze.

At the end of the operation, which lasted two hours, the patient was in a state of collapse and his pulse was 120 per minute; but prompt treatment was given, and his improvement was prompt. On the third day the plates passed. Eleven months after operation the patient was in normal condition, without any trace of the enlarged cæcum to be found.

A CASE OF CUT-THROAT.

HISLOP (*Lancet*, June 30, 1894) reports an interesting case, as follows: On April 13 he was called into the country to see a man, seventy-four years of age, who had cut his throat. On reaching the patient, he found him sitting, supported by two people, on a night-chair, with a huge, gaping, and slightly lacerated wound of the neck, extending to within half an inch of the carotids on either side. The trachea was all but completely severed, the band that was left being certainly not more than a quarter of an inch wide. The man had evidently lost a great deal of blood; he was pulseless and in a state of collapse. After tying four arteries, from which the blood was still coming freely, Hislop brought the ends of the trachea together with four strong silk sutures, washed the big cavity of the wound out with cold spring water, and brought the surfaces together with ten interrupted silk sutures. The wound was dressed with a thick pad of dry lint and surrounded with cotton wool. By this time the man had completely recovered consciousness, and was able to speak freely and without pain. Recovery followed uninterruptedly and was completed May 28.

GLYCERIN INJECTIONS AS AN OXYTOCIC.

PELZER (*Centralbl. f. Gynäk.*, No. 26, 1894) read a communication on this subject at a recent meeting of the Cologne Obstetrical Society. He had collected twenty-eight cases, including nineteen in his own experience. Glycerin was used eighteen times for induction of premature labor; in fifteen of these cases the pelvis was narrowed, in two there was Bright's disease, and in one placenta prævia. To stimulate uterine action at term, glycerin was injected in seven cases of simple atony, in two of placenta prævia, and in one for some other complication. The pains came on after an average interval of two hours following the injection. Eight to ten hours elapsed before complete dilatation of the os, or a longer space of time in cases of contracted pelvis. Two of the mothers died, both from severe eclampsia; the fœtus was putrid in both cases. One child required craniotomy on account of its great size. Three children died from placenta prævia and strangulation by the funis. One, hardly thirty-two weeks old, died a quarter of an hour after birth. Only in one case could the violence of the pains be a possible cause of the death of the child. The glycerin had done its duty. Pelzer, however, deprecates injudicious zeal in this method; thirty to fifty cubic centimetres, not one hundred cubic centimetres, are sufficient for injection. The method is not suitable for cases of eclampsia and placenta prævia, except the lateral variety, where the placenta can be avoided.

GEUER (*ibid.*) read notes of three cases of induction of premature labor by injection of glycerin, in all of which both mother and child were saved. The first two mothers were over thirty-two, with contracted pelves; craniotomy had been performed in previous labors. The third case was an instance of bad eclampsia; 40 grammes of glycerin were injected, the os being at the time uncontracted; there was œdema, with much albuminuria. Forty hours later a healthy living child was born.—*British Medical Journal*, July 21, 1894.

APPENDICITIS OBLITERANS.

SENN (*Journal of the American Medical Association*, quoted by the *Canadian Practitioner*, July, 1894) concludes his paper on this subject as follows:

1. Appendicitis obliterans is a comparatively frequent form of relapsing inflammation of the appendix vermiformis.

2. It is characterized by progressive obliteration of the lumen of the appendix, by the gradual disappearance of the epithelial lining and glandular tissue, and the production of granulation tissue from the submucous connective tissue, which, by transformation into connective tissue and cicatricial contraction, starves out remnants of glandular tissue, and finally results in obliteration.

3. The obliterating process manifests a progressive tendency, and may finally result in a complete destruction of all glandular tissue and obliteration of the entire lumen.

4. The incipient pathologic changes occur either in the mucous membrane of the appendix, in the form of superficial ulceration, or as

an interstitial process following lymphatic infection.

5. The most constant symptoms which attend this form of appendicitis are relapsing acute exacerbations of short duration, moderate or no appreciable swelling at the seat of disease, and persistence of soreness and tenderness in the region of the appendix during the intermissions.

6. The process of obliteration may begin at the distal or proximal end, or at any place between, or it may commence simultaneously, or in succession at different points.

7. Obliteration on the proximal side gives rise to retention of septic material, which finds an outlet through the lymphatics, giving rise to non-suppurative lymphangitis and lymphadenitis.

8. Circumscribed plastic peritonitis is an almost constant concomitant of appendicitis obliterans, and hastens the process of obliteration.

9. Complete obliteration of the lumen of the appendix results in a spontaneous and permanent cure.

10. In view of the prolonged suffering incident to a spontaneous cure by progressive obliteration and the possible dangers attending it, a radical operation is indicated, and should be resorted to as soon as a positive diagnosis can be made.

RESORBINE: A NEW OINTMENT BASE.

LEDERMANN (*British Journal of Dermatology*, July, 1894) reported to the Berlin Dermatological Society a base which is capable of traversing the skin after moderate rubbing in, and which leaves a slight covering layer. It is made with some difficulty after a patented method by emulsifying pure almond oil and a little wax with water and a small percentage of other innocent but necessary vehicles. Resorbine can be mixed with all vegetable and animal fats. It is especially advantageous to add a little lanolin. Its use is indicated in all the hyper- and parakeratoses, as ichthyosis and pityriasis, and in scleroderma, in artificial dermatites, ulcerations, rhagades, scabies. It combines well with Neapolitan ointment. The price is about the same as that of lanolin.

STATICAL ELECTRICITY IN ECZEMA.

DOUMER (*Arch. d'Électricité Médicale*, May, 1894) reports favorable results in eczema from the employment of the electric souffle. Of fifty cases, forty-eight were completely and rapidly cured. The cases enumerated include both acute and chronic eczema, and the patients were of various ages. He advises the use of a machine capable of giving sparks three inches long, and an electrode with points for the breeze or brush discharge. Either the negative or the positive pole can be used, no difference in their action upon the complaint having been noticed.—*British Medical Journal*, July 14, 1894.

APPLICATION FOR PSORIASIS.

Chrysarobin is dissolved in chloroform (1 to 7), and to it an equal amount or less of linseed oil is added and thoroughly stirred with a hog's bristle shaving-brush. With this mixture the diseased area is well scrubbed.—*British Journal of Dermatology*, July, 1894.

DOUBLE SEPTIC ORCHITIS COMPLICATED BY PERITONITIS.

HORNUS (*Archiv. de Pharm. de Mil.*, July, 1894) records a case of double septic orchitis complicated by peritonitis and terminating fatally. The patient had no preceding venereal disease. The onset was sudden. After a few days symptoms of peritonitis set in. The patient perished. On incision into the testicles pus was found, the glandular substance of the organs having been completely destroyed. This pus had extended along the cord through the inguinal canal and into the iliac fossa, where several drachms were found. The inflammation is supposed to have been due to mumps. Early free incision probably would have prevented extension of the inflammation to the peritoneal cavity.

TYPHOID FEVER COMPLICATED BY GANGRENE IN BOTH LEGS.

DURAND (*Archiv. de Pharm. de Mil.*, July, 1894) publishes a case of typhoid fever complicated by gangrene in both legs. At the third week of his disease the patient complained of a tickling sensation and of coldness in both feet. On the following day, in addition to these symptoms, he had incontinence of urine, and had a constant desire to pass his water. Examination then showed discoloration of the feet, total loss of sensation, and marked lowering of temperature. The symptoms of local gangrene steadily progressed; this took the dry form. Some disseminated gangrenous spots also appeared on both legs in the region of the sacrum and the right trochanter. The gangrenous process slowly extended, the patient

at the same time steadily losing ground. Four months later both legs were amputated at about the upper third. The patient recovered.

THIOSINAMIN INJECTIONS IN LUPUS.

DR. W. VAN HOORN (*Monatshefte für Practische Dermatologie*, June, 1894) has used thiosinamin in a few cases of lupus, and reports the following results:

After the injection of the drug there was swelling of the skin, often very considerable and rapid; twenty-four hours later a rich desquamation followed; while during reaction there was a sense of heat and stretching of the affected point.

When treatment was regularly followed there was almost always improvement; ulcers healed over, swellings were reduced level with the surface. One patient, with wide-spread "lupus tumidus" and "verrucosus" of the left arm and back of the hand, showed marked improvement after fourteen days. Yet in three other cases in which the treatment was followed he saw no improvement until he changed to salicylic plaster.

In two cases, handled unsuccessfully with tuberculin, thiosinamin was tried for fifteen months, an injection being given every two to three weeks.

At first two cubic centimetres (.2 gramme of thiosinamin) of a fifteen-per-cent. alcoholic solution (Hebra), and later the same dose of a ten-per-cent. glycerin solution (Duclaux) was used, the latter causing less pain upon injection. Throughout the entire fifteen months the injections were well borne and improvement noted, but at the expiration of this time the patients complained of loss of appetite, numbness of the head, and a sense of weakness and fatigue in the whole body, but especially the limbs.

These complaints increasing after each injection and lessening upon cessation of treatment, the treatment was discontinued, and again improvement was noted for another three months. As a result of his experience, he thinks that in most cases of lupus it is not wise to commence with the thiosinamin treatment, but to hold it in reserve until after the local treatment has failed.

INGESTION OF THE THYROID GLAND OF THE SHEEP IN MYXŒDEMA.

At a meeting of the Hospital Medical Society, Paris, M. P. MORIE (*Revue de Thérapeutique Médico-Chirurgical*, June 15, 1894) reported a case of myxœdema cured by the ingestion of the thyroid gland of the sheep.

The woman, aged forty-two years, had been unsuccessfully treated by injections of the juice of the thyroid gland. Last October she commenced eating daily two lobes of the thyroid body of the sheep, and her condition is now much improved, perhaps is cured, but he considers it necessary to continue the treatment indefinitely.

A NEW METHOD OF REDUCING BACKWARD DISPLACEMENTS OF THE UTERUS.

JULES BATNAUD (*Revue Médico-Chirurgical des Maladies des Femmes*, May, 1894), reporting the communication of Rapin at the Rome Congress, says that many cases of backward displacement of the uterus, in which this organ is supposed to be adherent to the surrounding viscera, are, as a matter of fact, simply held in Douglas's pouch by a combination of atmospheric pressure, the intestines, and the two layers of the sacro-uterine ligament, which imprison it laterally. To dislodge the uterus from this incarcerated position, Rapin has proposed this procedure:

The first two times insert the sound and rotate in the usual way. If the position remains unchanged, the third time, instead of lowering the handle of the sound, press upon the sound from behind forward and from below upward, moving the uterus as with a lever; by so doing one presses upon the entire anterior face of the uterine cavity, not only with the point, but with the entire part of the sound within the uterus; then we raise and draw the uterus forward and upward without endeavoring at first to replace it.

By this manœuvre we dislodge the fundus from the rectum, opening the cul-de-sac, and the intestines, pressed down by the atmospheric pressure, fall into the place formerly occupied by the fundus, thus aiding in the forward movement of the organ.

At the moment the intestines assume their new position one feels that the resistance is overcome, and if now the handle of the sound is lowered, the replacement is completed without the aid of force or the provoking of pain. The sound is withdrawn, while, with the index finger still in the vagina, the neck of the uterus is pushed backward and the fundus comes forward into position. When there is resistance to the upward and forward traction, instead of the continuous pressure, a to-and-fro or a sawing movement causing the uterus to advance in a zigzag manner is often of advantage.

In all these manipulations the sound is governed by one hand, while the index finger of the other is placed within the vagina, palpating the cul-de-sac and controlling the sound within the uterus.

To maintain the uterus in position a pessary is used that fits partly in the vagina and partly within the uterine cavity.

REMOVAL OF LARGE FIBRO-MYOMAS OF THE UTERUS BY MEANS OF A PERINEO-VAGINO-RECTAL INCISION.

At the Rome Congress, M. PÉAN (*Revue Médico-Chirurgical des Maladies des Femmes*, May 25, 1894), under the above title, proposed a method for the removal of large interstitial fibroids of the uterus, attacking the tumor from below.

To obtain access to the tumor two large toothed forceps are used; the blades of the instruments being placed respectively in the vagina and rectum and forcibly closed, render the further steps of the proceeding bloodless. The perineum is divided in the median line, including the vaginal and rectal mucous membrane, up as far as the peritoneum, exposing the tumor. The two large hæmostats, being given to an assistant, are used as retractors, and the tumor is seized with toothed forceps and removed piecemeal, endeavoring to preserve all the uterine structure possible.

Bleeding from the tumor cavity is controlled with hæmostats, which are removed in a few hours, while the cavity is packed with iodoform or some suitably-prepared sponge, and a large drainage-tube is also inserted. After two or three days the sponges are removed and the cavity is cleansed by antiseptics passed through the drainage-tube.

The operation is concluded by sewing the two mucous surfaces of the vagina and rectum together with catgut, the intermediate structures being united; the operation is thus hastily and easily executed.

Correspondence.

LONDON.

(From our Special Correspondent.)

The Evelina Hospital for Sick Children.—A visitor to London might very well spend a part of his time in visiting the various hospitals. In former letters I have attempted to give some idea of the working of St. Bartholomew's Hospital, the most flourishing of our larger institutions, with the view of rendering it more easy for an intending visitor to see the things most worthy of notice with the greatest economy of time. In the present communication I hope to give a similar idea of one of the minor hospitals,—the Evelina, situated in Southwark, and devoted entirely to the treatment of the diseases of children.

Instituted about four and twenty years ago, under the immediate care of Baron Ferdinand Rothschild, the hospital has enjoyed perhaps exceptional advantages. Under these auspices it has grown from an institution of only twenty-four beds to one capable of accommodating sixty-six in-patients; and its increase is not going to stop here, for arrangements are already on foot, and will very shortly be carried into effect, by which the number of beds will be increased to a hundred. The accompanying plan, kindly furnished to me by Dr. Soltau Fenwick, one of the honorary physicians, will give a very good idea of the present arrangement of the building and also of the proposed alterations and enlargements. It is also to Dr. Fenwick that I owe most of the information which I am here enabled to place before your readers.

As to the Actual Working of the Hospital.—This is in the hands of two resident medical officers, two physicians to in-patients, two physicians to out-patients, and similarly two in- and two out-patient surgeons. The wards are practically fed from the out-patient department, and during the past year six hundred and twenty-seven children were admitted as in-patients, each making an average stay of thirty days. All diseases other than those of an infectious nature are eligible for treatment. The only infectious disorder in favor of which an exception is made is whooping-cough. The out-patient medical staff attend on four days and the surgeons on two days in the week. Each day an average of about twenty new cases is seen in this department, so that in the course of the year something like two thousand new cases come to each member of the staff. Add to this number an average of a hundred "old" patients daily, and it will be seen that the field for clinical observation is by no means a limited one.

The Surgical Side.—The surgeons are well provided for, and there is a good deal of operative work which falls to their share. Most of the minor operations are performed in the out-patient department, many of them under chloroform. The rest, comprising those of gravity or of a tedious nature, are performed in the excellent operating-theatre, which is complete

with every modern appliance. It will be found that in this, as in most other children's hospitals, chloroform is preferred by the anæsthetist, and has always been administered with perfect safety. If asked what are the conditions which most frequently come for operative treatment, I should say that necrosis of the various long bones and empyemata are far the most numerous; but in a poor neighborhood like that in the heart of which the hospital is situated, accidents are often occurring, and these naturally fall to the lot of the surgeons.

The Medical Side.—As a transition from the surgical to the medical work, I may draw attention to the empyemata, which come generally under the care of both physicians and surgeons. In this condition experience shows that considerable time and risk are saved by resorting as early as possible to active surgical measures. If the physical signs point to an effusion of a purulent nature,—high temperature, embarrassed breathing, displacement of thoracic viscera, dulness on percussion, alteration of the pleximetric curve, etc.,—an exploratory puncture is at once made by means of a small syringe or aspirator needle, and if the diagnosis be confirmed, free incision and drainage are carried out without further delay. As is well known, the prognosis in children is particularly favorable and death hardly ever occurs.

At this season of the year the most common ailment in the medical department is diarrhœa. Dr. Fenwick tells me that his experience leads him to rely chiefly upon antiseptics in such conditions. His favorite remedy is benzo-naphthol, which is given in grain doses thrice daily, even to very young children. It will be remembered that benzo-naphthol is a benzoate of β-naphthol, and that it is said to break up in the intestine into its constituents, both of which have an antiseptic action. Another remedy much used in this condition is carbolic acid, which is given in minim doses, either as a mixture or in the form of perle. Some of the physicians prefer creolin, giving it in drop doses on sugar, and in many cases this treatment is highly successful. Its nauseous odor and taste, however, prevent its finding favor with children. Lastly, creosote is used by some, but this is open to the same objections, and to a greater degree, as those already referred to in regard to creolin.

Chorea is another affection frequently met with in the out-patient department. The treatment of this affection hardly presents peculiarities. The little patients rapidly improve on large doses of belladonna or liquor arsenicalis. It is well known what large quantities of these drugs choreic children will tolerate without difficulty.

Whooping-cough comes so often under treatment that it has been deemed desirable to devote a whole ward to the treatment of this affection. The most successful of all drugs at present in vogue is bromoform. It is given in doses of from 1 to 5 minims, either suspended in syrup or in a mixture, the taste being concealed by means of paregoric or some other flavoring ingredient. The drug does not appear to alter the duration of the affection, but is most useful in checking the paroxysms of cough and vomiting. I do not know whether it is a matter of common observation in other institutions, but I am given to understand that quite a large proportion of the serious cases of whooping-cough admitted at the Evelina develop miliary tuberculosis after admission.

Another ailment frequently met with in all children's hospitals—nocturnal incontinence—is generally treated by the application of the faradic current, used as strong as the patient can bear it. One pole is applied to some neutral point, such as the nape of the neck, and the other is applied to the perineum, the latter electrode being more or less cone-shaped, and provided with a movable covering of either chamois leather or, better, of amadou. With this arrangement a fresh covering can be used for each patient. Improvement is generally very rapid, and the trouble often ceases after a few applications of the current. Should it relapse, a renewal of the treatment is attended with equal success. Treatment by such means is found to be far more successful than by any of the drugs, such as belladonna, which were formerly employed, but which, if used at all, are given solely as adjuncts to the electrical treatment.

To complete this account of the Evelina Hospital, I would mention that there is a very efficiently equipped dispensing department, at which the patients, after receiving their prescriptions from the physicians, have their medicines dispensed to them, each patient contributing the nominal sum of a penny, which, presumably, covers the cost of bottle, cork, etc.

I am informed that medical men, of whatever nationality, are at all times cordially welcomed to follow the practice either of the out- or in-patient department, and as patients are expected to attend at 9 A.M., a very considerable amount of clinical material can be seen before mid-day, so that a morning spent in the institution cannot fail to be profitable to all who avail themselves of this invitation.

At the recent meeting of the British Medical

Association, among other papers, was one upon "The Diagnosis of the Three Chief Forms of Contagious Ophthalmia,—namely, the Catarrhal, the Purulent, and the Granular Varieties," read before the Section of Ophthalmology by Henry Juler, F.R.C.S., ophthalmic surgeon to St. Mary's Hospital, etc.

Mr. Juler, in commencing his paper, regretted the imperfect knowledge with regard to the specific cause of these conjunctival complaints, stating that we could at present in many instances only rely upon a diagnosis by the clinical features of the case.

He discussed these diseases under two heads,—the acute forms of ophthalmia and the chronic.

In the three common acute varieties—the purulent, the catarrhal, and the granular—many symptoms are similar, and no one may be characteristic; for example, the discharge may be purulent in all three cases. We are, however, able to distinguish the gonorrhœal variety by the presence of the gonococcus of Neisser. Great intensity of the symptoms, with brawny infiltration of the lids, is much more common, too, in this variety than in the others.

Acute granular conjunctivitis is to be recognized if the "sago-grained" granulations are seen on the palpebral conjunctiva. Their absence, however, is not sufficiently trustworthy to exclude the disease, as the inflammatory infiltration during the active stage often masks these diagnostic bodies. It usually subsides into a chronic condition.

Acute catarrhal ophthalmia, though frequently severe and attended with excessive discharge and conjunctival hemorrhages, occasioning great discomfort, besides being a most contagious affection, subsides under proper treatment in about fourteen days.

Though the presence of a micro-organism has been proved, more evidence is wanted to prove it the specific cause of the disease.

Mr. Juler considered that most cases of chronic ophthalmia came under the headings of chronic catarrhal and chronic granular conjunctivitis. He entered into the question of the value of the lymphoid follicles, or so-called "trachoma capsules," as a help in the diagnosis of these complaints. He is of opinion that lymphoid follicles exist normally in most cases in the cul-de-sac, and that they are, as it were, sentinels which give warning of the approach of foreign or irritating substances and endeavor to eliminate them; consequently these follicles are liable to become inflamed either from simple or specific causes. He believes that only in trachoma are capsules to be found in abnormal positions, as on the palpebral conjunctiva. He showed a number of photo-micrographs of these bodies and of other histological changes in these membranes. One of them illustrated a follicle embedded in the substantia propria of the cornea, consecutive to a violent attack of granular ophthalmia and progressive pannus.

So-called follicular conjunctivitis, Mr. Juler regards as a simple non-contagious affection, allied to chronic catarrhal ophthalmia, but characterized besides by hyperplastic changes in the follicles. He emphasized the difficulty of distinguishing between certain cases, and pointed out that their behavior to treatment is very often the only way of arriving at a correct diagnosis.

HEMORRHAGE IN TYPHOID FEVER.

To the Editors of the THERAPEUTIC GAZETTE:

DEAR SIRS:—I have just read your editorial on the treatment of hemorrhage in typhoid fever. Last year I treated quite a number of cases of typhoid fever, and out of twenty-seven had four very bad cases of hemorrhage. Now, in all these I used the same plan of treatment, with the best results, having only one case in which there was a slight recurrence.

This treatment was given in a paper read by me before the Medical Society of the District of Columbia, on the general treatment of typhoid fever, and consisted of the following plan:

I immediately applied an ice-bag upon the right iliac region, interposing between the patient and the ice-bag a double layer of white flannel; and applied also a cotton bandage over the ice-bag, moderately tight, making a local compress of the ice-bag, as well as getting the effect of the cold upon the region from which I thought the hemorrhage came. At the same time I raised the hips with a small hair-pillow and removed those from under the head.

By the mouth I gave, in each case, a pill consisting of one grain of opium and one of sugar of lead, every three hours, until the patient was thoroughly under the effect of the opium; at the same time I gave an enema of one pint of ice-cold water, containing one dessert-spoonful of tannic acid. I don't think I have ever seen better results obtained from any other treatment, and can recommend the same to the profession with the greatest confidence in its efficacy. Respectfully yours,

CHAS. G. STONE.

BRIGHTWOOD. D. C.

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